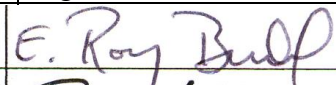
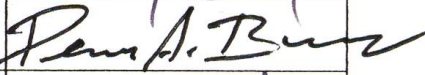
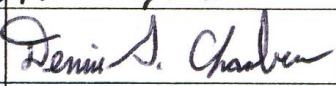
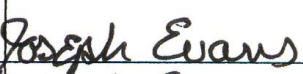

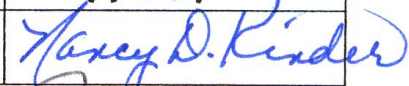
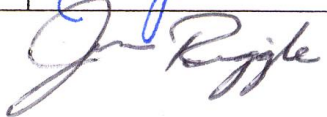


Strategic Skills Initiative Skills Shortage ID Report Cover Sheet

Economic Growth Region # 6 : Eastern Indiana Economic Growth Region

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**Eastern Indiana Economic Growth Region 6
Strategic Skills Initiative
Occupational Skill Shortages Report**

Executive Summary

The Eastern Indiana Economic Growth Region comprised of Blackford, Delaware, Fayette, Henry, Jay, Randolph, Rush, Union and Wayne counties in Eastern Indiana has conducted an Occupations and Skills Shortage analysis for the purpose of generating this Occupational Skill Shortages Report as Phase I of the State of Indiana's Strategic Skills Initiative. The purpose of this Initiative is to ultimately, through subsequent Phases, identify the Root Causes and Solutions to these shortages so as to promote the growth of jobs and create new job opportunities for the Region.

Through this process the Eastern Indiana Economic Growth Region has clearly recognized that its future economic strength will be based, in part, upon the strength and preparedness of each of its counties. Counties must be able to compete, retain, and grow its economy while exploring ways the region can work together to enhance and complement those local efforts. In a nutshell – *Thinking locally and acting regionally!*

Understanding the Data

The first challenge of Eastern Indiana Economic Growth Region was to clearly understand the economy of each county and the region as a whole. Data was reviewed comparing our region's employment share in 17 industries to that of Indiana and the United States. Information from the ERRIS Job Vacancy Survey and numerous other sources were examined and synthesized.

Community Forums

A summary of the findings were presented to each of the nine counties in the region at community forums. The purpose of the forums was to begin to 1) develop an understanding of the importance of thinking and working together as a Region, 2) present the empirical data about the economy of the county and the Region, and 3) to gather feedback on the accuracy of the empirical data. A secondary purpose was to develop leads for the Strategic Skills Initiative Phase II – Executive Interviews – to verify occupational and skill shortages and identify root causes. Over 370 individuals participated in the nine forums conducted with diverse representation. The Executive Team and Consortium Members were invited to every forum and participated as his/her schedule permitted.

Identification of Key Industries

The final selection of the Key Industries posed a challenge to the Executive Team in light of the overall loss of market share in most key industries over the past ten years. Blending data analysis with forum input and ultimately the input of the professional economic developers for the Region, the Key Industries identified are:

- Manufacturing
- Health Care Services
- Agriculture
- Transportation & Warehousing

Identification of Critical Occupations

The identification of critical occupations represents an important milestone in this research report. The process through which these determinations were made blended (i) judgment, (ii) input from employers, and (iii) analysis of data and trends, as described below. The outcome identified the following occupations as critical to the growth of Eastern Indiana:

- Health Diagnosing and Treating Occupations
- Health Technologists and Technicians
- Life Scientists
- Business Operations Specialists
- Metal Workers and Plastic Workers
- Truck Drivers – Heavy Tractor Trailers

These occupations share at least these three elements in common: (i) they are critical to industries that we expect to have reasonably strong hiring in the forecast period 2006-2012, (ii) they pay, or are expected to pay, wages at or above the average for the region, and (iii) they support industries that export a product or service to the economy outside the region, and thus their expansion can add to regional economic growth. These occupations fit, we believe, the essence of the Initiative – namely, to grow the region economy through growth in high-paying jobs.

Identification of Skill Shortages

In addition to the skills specific to the occupations and industries identified by this report, the team uncovered several cross-cutting skill shortages during community forums. These results include communications, reading comprehension, computer literacy, mathematics and science, problem solving, leadership, and work ethics. While this list is not exhaustive of the skill shortages expressed in all counties, these shortages appear to be the most problematic to companies in Eastern Indiana. Many of these skills are identified by sources such as O*NET and WorkKeys, and are skills relevant to many occupations in many industries. In speaking with community members, it became clear that while these skill shortages are problematic to the region now, the long-term impact is more severe.

The full Occupational and Skill Shortages Report goes into detail with regard to the methodology, data and decision making process for these determinations. The Executive Team is confident that this Report reflects a good strategy for pursuing Root Causes and Solutions which will serve the communities well in growing the jobs and economy of the Region.

I. Introduction

Eastern Indiana Economic Growth Region (Region 6), pictured in Figure 1, is made up of nine counties – Blackford, Delaware, Fayette, Henry, Jay, Randolph, Rush, Union and Wayne. The region spans 2,977 square miles in Eastern Indiana bordering Ohio on the East and Central Indiana on the west. The population of the area is 350,000 with 186,000 people working in 302 different industries. The region has shared a common history in the manufacturing boom, which continues to dominate the economy although the sector has been declining over the past three decades. Likewise, overall covered employment for this region peaked in about the mid 90’s and has been declining ever since (see Figure 2 below). This has set the Eastern Indiana Economic Growth Region apart from the other ten regions in the State as the only region to suffer a population loss since 1990.

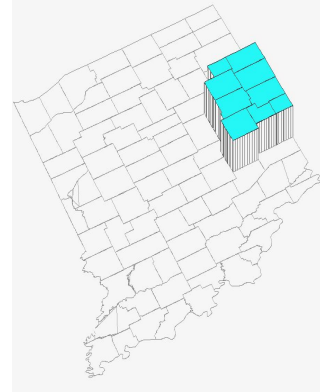
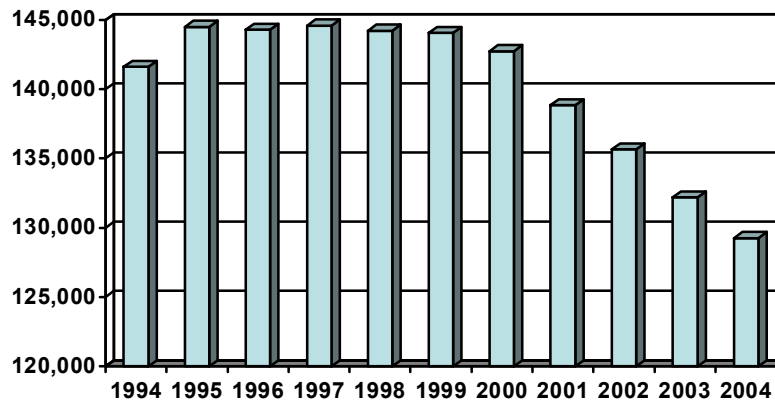


Figure 1. Eastern Indiana Economic Growth Region.

Figure 2. Total Covered Employment, Eastern Indiana 1994 - 2004.



Cross-commuting is significant for all counties, supporting the concept that the labor force is mobile and is being prepared for employment opportunities both within and external to the region. Even more significant is the fact that every county, with the exception of Wayne, has twice as many individuals commuting to employment outside of the region than individuals from outside commuting to employment within the region. Commuting into or out of Ohio appears to be most significant for Union County at 21%. For a complete picture of the commuting habits in Eastern Indiana, see Table 1.

Table 1. Commuting Patterns of Eastern Indiana Workers.

COUNTY	Number into Region	Number from Ohio	Number out of Region	Number into Ohio
Blackford	670		1507	
Delaware	3426		6162	
Fayette	829	77	1495	87
Henry	1313		5777	
Jay	452	217	932	362
Randolph	582	582	1143	880
Rush	632		3576	
Union	183	141	966	787
Wayne	2340	2110	1499	1499
TOTAL	10427	3127	23057	3615

The region has one MSA, which is Muncie, IN. The two largest population centers are the cities of Muncie and Richmond, neither of which serves as an obvious center of gravity for the region. Although each of these cities is located close to an interstate, there is no common airport, media outlets or schools.

The Eastern Indiana Economic Growth Region has clearly recognized that its future strength will be based, in part, upon the strength and preparedness of each of its counties. Counties must be able to compete, retain, and grow its economy while exploring ways the region can work together to enhance and complement those local efforts. In a nutshell – ***Thinking locally and acting regionally!***

The first challenge of Eastern Indiana Economic Growth Region was to clearly understand the economy of each county and the region as a whole. Data was reviewed comparing our region’s employment share in 17 industries to that of Indiana and the United States (see Table 2). In doing so it became evident that our dominate industries are Manufacturing, Education, Health Services, and, to a lesser extent, Public Administration.

Table 2. 2004 Industry Employment Shares.

Industry	Eastern Indiana	Indiana	U.S.
Construction	3.7%	5.2%	5.5%
Manufacturing	22.6%	20.1%	11.1%
Wholesale Trade	2.7%	4.2%	4.4%
Retail Trade	12.8%	11.7%	11.7%
Transportation and Warehousing	2.8%	4.3%	4.0%
Information	1.4%	1.7%	2.5%
Finance and Insurance	2.8%	3.6%	4.5%
Real Estate	0.9%	1.3%	1.6%
Professional Services	2.0%	3.1%	5.3%
Management	0.8%	0.9%	1.3%
Admin/Support Services	3.0%	5.3%	6.1%
Educational Services	10.9%	8.2%	8.8%
Health Services	15.7%	11.9%	12.2%
Art, Entertainment, and Recreation	0.8%	1.6%	1.7%
Accommodation and Food Services	8.3%	8.1%	8.3%
Other Services	2.8%	2.9%	3.4%
Public Administration	4.9%	4.5%	5.5%

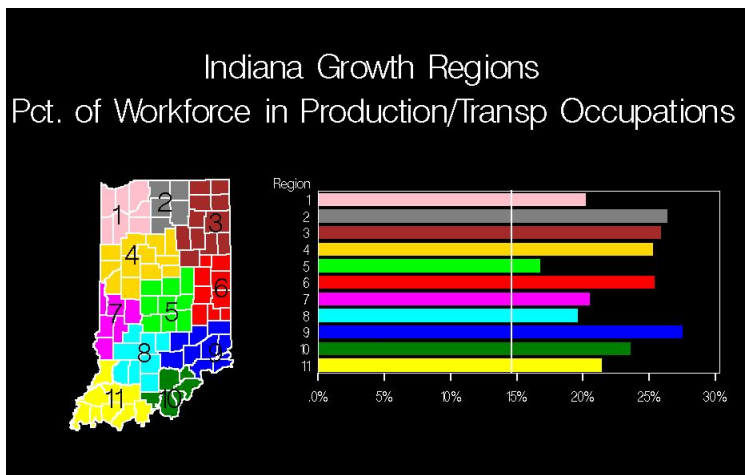


Figure 3. Percentage of Indiana Workforce in Production/Transportation Occupations by Regions.

A further analysis of the region, represented as Region 6 in Figure 3, shows that over 25% of the workforce is employed in either the Production or Transportation Occupations, exceeding the national average by 10%. This data takes on greater importance when the average wage in these occupations is considered. The average annual wage of occupations in the transportation and manufacturing occupations in the Eastern Indiana EGR

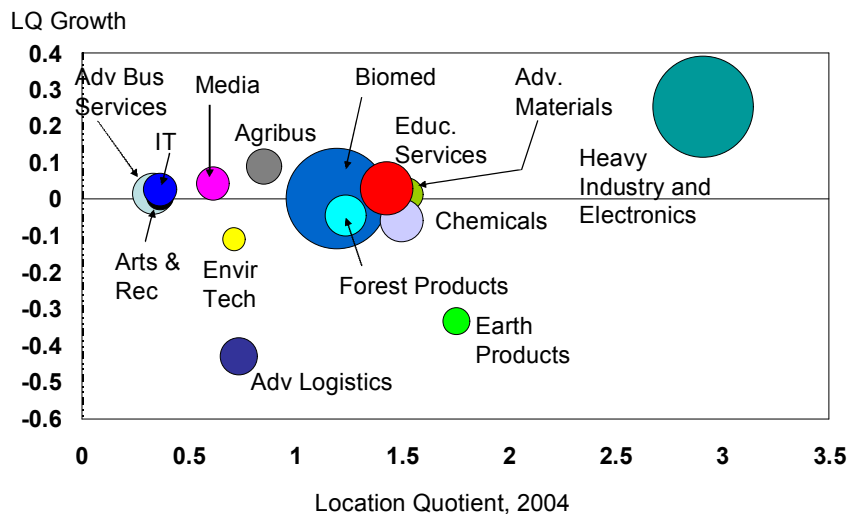
exceed the average annual wage of all occupations in the region by 13% and 43%, respectively.

Another factor to examine is the job loss for the region. For the ten year period ending 2004, the Eastern Indiana EGR had experienced 12,366 job losses. While this period encompassed a recession, it also represented a period of national job growth. If the region had grown at the U.S. average, it should have posted a 21,120 job gain. To account for the region's heavy concentration in manufacturing – an industry that historically does not fare well during economic downturns – job loss was calculated

based upon the industry mix of the region. This calculation resulted in a projected job loss of 5,554 due to our industry mix. This represents a startling statistic showing an actual loss of market share with a job loss of 27,720 based upon our industry mix.

Our analysis then turned to take a look at the existing industry concentration as compared to the national average. This was accomplished by looking at the industry clusters, which are collections of industries that share products, technology or expertise, and by measuring the concentration called the location quotient (LQ). To give applicable meaning to this concept, an LQ equal to one means that that industry or cluster is no more or less concentrated than the national average. The three-dimensional chart in Figure 4 not only looks at the LQ by industry cluster for the region, but also looks at the size of the cluster and whether it is growing or declining. This analysis was one of the key factors for the identification of key industries in the region.

Figure 4. Eastern Indiana Industry Clusters Employment Analysis.



To understand the dimensions of the graph, the size of the bubble represents the relative size of the industry. So, for example, the Heavy Industry and Electronics and Biomedical bubbles are clearly two of the largest employment clusters in the region. The second dimension is where the bubble is located on the horizontal axis. Any bubble to the right of “1” means that the LQ is greater than the national average. Once again, the Heavy Industry and Electronics and Biomedical bubbles fall in this category, with Heavy Industry and Electronics doing so to a much higher degree. Other industries that fall in this category are Forest Products, Educational Services, Chemicals, Advanced Materials and Earth Products. The third dimension, the vertical axis, became an important factor in assisting future decision making. The placement on this axis represents whether or not an industry is growing or declining. Any industry which is above the “0” on the vertical axis is an industry, regardless of size and concentration, which is growing.

These data sets along with information on average annual pay, including an understanding of the importance of benefits as a part of that compensation package, became the basis for making decisions as to key industries and critical occupations to be

targeted for the region. And while this data provided some very clear trends for the region, what it failed to provide was trends for those emerging industries and occupations that are not yet a part of the empirical data. The region relied heavily on the information gathered through the community forums and consortium members (see Appendix A), and input from the Executive Team (E-Team) in charting the course which would best address the existing and future occupational and skill shortages for the region.

II. Key Industries

As set forth in the Strategic Skills Initiative (SSI) Guidebook, several factors were considered when choosing the key industries for the Eastern Indiana Economic Growth Region (Region 6). With this guidance in mind the E-Team began at the broadest level by determining the 2004 employment share, the percent difference between the region's average annual pay and the industry's average annual pay, the job growth from 1994-2004, the 2004 LQ, the LQ growth from 1994-2004, and the 2004 shift share for all twenty major industries. Rather than looking at one of these categories specifically, the E-Team considered the big picture of each industry. For instance, industries that had low employment shares, wages lower than the average annual pay, and a negative job growth were set aside as key industries. The difficulty in this empirical analysis approach to determining the key industries is that, as stated in the introduction, Region 6 has lost nearly 28,000 jobs in the past decade. Notwithstanding this fact and following a purely empirical approach to the analysis of key industries, Table 3 represents the information on the twenty major industries used in making the determinations of key industries.

Table 3. Data on Identified Key Industries in Region 6.

Industry (NAICS)	2004 EGR 6 Employment Share	% Diff. from Avg. Annual Pay	EGR 6 Job Growth	EGR 6 LQ	EGR 6 LQ Growth	EGR 6 Shift Share
Agriculture (11)	0.40 %	-33.26%	-16.97%	0.58	0.02	-182
Mining (21)	NA	NA	NA	NA	NA	NA
Utilities (22)	NA	NA	NA	NA	NA	NA
Construction (23)	3.70%	2.83%	1.19%	0.67	-0.06	-1785
Manufacturing (31-33)	22.65%	43.53%	-20.45%	2.05	0.33	-1625
Wholesale Trade (42)	2.69%	17.35%	-17.23%	0.62	-0.05	-1255
Retail Trade (44-45)	12.83%	-37.57%	-5.16%	1.10	0.07	-2940
Transportation & Warehousing (48-49)	2.82%	13.93%	-52.10%	0.71	-0.61	-4847
Information (51)	1.38%	-12.75%	-18.89%	0.55	-0.05	-660
Finance & Insurance (52)	2.81%	10.26%	-2.70%	0.62	0.03	-706
Real Estate (53)	0.92%	-15.69%	-15.54%	0.56	-0.05	-456
Prof, Scientific, & Tech (54)	2.05%	5.08%	7.43%	0.38	0.01	-588
Management (55)	0.78%	64.13%	3.51%	0.59	0.08	-84

Industry (NAICS)	2004 EGR 6 Employment Share	% Diff. from Avg. Annual Pay	EGR 6 Job Growth	EGR 6 LQ	EGR 6 LQ Growth	EGR 6 Shift Share
Administrative (56)	2.99%	-33.79%	-24.37%	0.49	-0.23	-3387
Educational Services (61)	10.87%	7.73%	5.55%	1.23	0.06	-2724
Health Care Services (62)	15.72%	4.17%	14.75%	1.29	0.18	-1660
Arts & Entertainment (71)	0.81%	-58.21%	13.99%	0.47	0.04	-195
Accommodation & Food (72)	8.26%	-65.66%	-2.50%	1.00	-0.01	-3004
Other Services (81)	2.81%	-40.74%	-18.16%	0.84	-0.12	-1569
Public Administration (92)	4.88%	-5.65%	9.14%	0.89	0.19	-53

Industries with low employment shares, wages lower than the average annual pay, and a negative job growth were set aside as key industries. Those key industries included Agriculture, Information, Real Estate, Administrative, and Other Services, and were eliminated as potential key industries in the first cut. A lack of data for the Utilities and Mining industries led the E-Team to eliminate these two industries as well.

Next the E-Team considered which of the remaining industries offered pay that was significantly lower than the region's average annual pay. Of the industries that fell into this category - Retail Trade, Arts and Entertainment, Public Administration, and Accommodation and Food – all were eliminated.

Of the remaining industries, the E-Team determined that, due to high employment shares, above average wages, and job growth, Health Care Services and Educational Services merited further consideration as key industries for the region. In further analysis the E-Team determined that while Educational Services was potentially a key industry, the demand was at the post secondary level which likely would be recruited from a national rather than a regional market, and, therefore, it was eliminated. **Health Care Services** was identified as one of the key industries. Other remaining industries include Construction, Finance and Insurance, Wholesale Trade, Transportation and Warehousing, Professional, Scientific, and Technical Services, and Management. These industries have a relatively small employment share and represent a LQ of less than one meaning they do not have a large employment presence in Eastern Indiana, and were eliminated.

The only remaining industry is manufacturing which represents the largest employment share for the region at 22.65%. In addition the average annual wage for manufacturing exceeds the average annual pay of \$30,127 for the region by over 43%, and has an LQ nearly twice as high as any other key industry. The E-Team discussed at length the forecasting for the manufacturing industry and concluded that even with the potential for continued decline of large regional manufacturing employers, there continues to be growth in small to medium sized manufacturing operations with good wages and benefits. It was noted that the manufacturing cluster is large, has a high LQ and is growing in significance. Therefore, by consensus of the E-Team and supported by the input from the community forums, **Manufacturing** was identified as a key industry.

The focus for identification of key industries was then turned to emerging industries that do not rank for consideration using the empirical data analysis approach. The first industry of discussion was agribusiness. While the industry appears to be very small with an LQ consistent with the national average, it is a growing industry. It is a well known fact that the empirical data in the agribusiness industry is undercounted and not well suited to this type of comparative analysis. The growth of this industry will be enhanced by the Indiana State Department of Agriculture’s Strategic Plan and initiatives to grow this industry in Indiana. Specifically Region 6 should be able to take advantage of the areas of grains and oilseeds, pork production, and bio-fuel initiatives. Occupations in these industries are not the occupations of past decades, and will represent higher wage and higher skilled occupations. This industry received significant support throughout the region at the community forums and as such *Agribusiness* is being added as the third key industry even though previously set aside based upon the empirical data.

Consistent with the selection of the manufacturing industry was the discussion of the Transportation and Warehousing Industry. While the transportation and warehouse industry was previously set aside as a key industry based upon empirical data, the industry does represent a modest employment share with an average annual wage for the industry above the average annual wage. The decision to include transportation and warehousing as a key industry is primarily based upon one factor affecting the empirical data and two factors supporting the notion that it is an emerging industry. The transportation industry is one in which the actual industry employment appears to be concentrated in a few states where the corporate offices of the trucking industries conduct their business due to the friendliness of the state’s laws for this industry. Indiana is not one of those states and therefore, while workers are employed locally and within the state, many workers in this industry are not represented in the empirical data. The two factors supporting the industry as emerging have to do with the recent change in Indiana Tax Laws with regard to the elimination of the inventory tax. This has already resulted in two proximate locations of warehousing and distribution centers just to the north and west of the region. Because the region is strategically located to take advantage of Interstate locations with I-69 to the West and I-70 to the South, these factors are expected to contribute to the growth of this industry in the region. In addition the passage of the Intermodal legislation will also offer this industry growth opportunity in the region. With this additional justification, *Transportation & Warehousing* was approved by the E-Team as the final key industry.

Table 4 summarizes the selected key industries for Region 6.

Industry (NAICS)	2004 Employment Share	Avg. Annual Pay	Job Growth	LQ	LQ Growth	Shift Share
Manufacturing (31-33)	22.65%	43.53%	-20.45%	2.05	0.33	-1625
Health Care Services (62)	15.72%	4.17%	14.75%	1.29	0.18	-1660
Agriculture (11)	0.40 %	-33.26%	-16.97%	0.58	0.02	-182
Transportation & Warehousing (48-49)	2.82%	13.93%	-52.10%	0.71	-0.61	-4847

Table 4. Region 6 Key Industries.

A. Manufacturing

The manufacturing industry, which is defined by the North American Industry Classification System (NAICS) as any establishment “engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products”¹, has a long and solid presence in Eastern Indiana. This industry accounts for nearly a quarter (23%) of the employment share in Eastern Indiana, and doubles the national manufacturing employment share of 11.1%. Additionally, the average annual wage earned by employees in this industry is 43% higher than the average annual wage for all industries in the region, and has continued to increase over the past decade (see Figure 5).

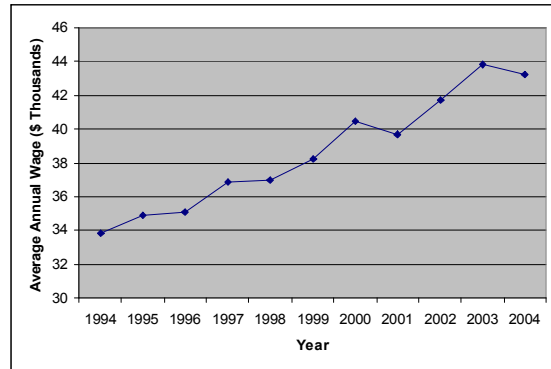


Figure 5. Average Annual Manufacturing Wage in EGR 6.

The main types of manufacturing that take place in Eastern Indiana include transportation equipment manufacturing, machinery manufacturing, and computer and electrical manufacturing. There are currently 551 manufacturing establishments providing over 29,000 jobs in the region. The majority of manufacturing companies in the region employ 100 or fewer workers. Table 5 provides the names and locations of the major manufacturing employers in the region.

Employer Name	Industry	Location	Employer Size
Visteon	Automobile	Connersville	3,700
Borg Warner	Automobile	Muncie	1,200
Manual Transmissions	Automobile	Muncie	1,200
Metaldyne	Automobile	New Castle	1,200
Belden Wire and Cable	Wire Products	Richmond	650
Cinram	Audio & Video	Richmond	600

Table 5. Major Manufacturing Employers in Eastern Indiana.

Although this industry could not be overlooked as key to Eastern Indiana, it is important to acknowledge the past and projected decline of the manufacturing trade. Despite its strong presence in Eastern Indiana, the employment outlook for the manufacturing industry is grim (see Figure 6). Eastern Indiana manufacturing experienced a peak during the mid- to late-1990s, and job opportunities have been declining ever since. Many jobs are being outsourced to other countries where workers require lower wages and fewer benefits to meet manufacturing needs.

¹ <http://www.census.gov/epcd/naics02/def/NDEF31.HTM#N31-33>

Additionally, advances in technology and machinery are increasingly replacing humans in order to raise productivity.

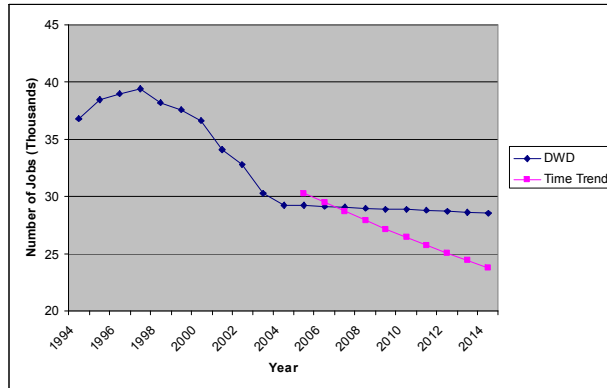


Figure 6. Number of Manufacturing Jobs in EGR 6.

B. Health Care and Social Services

The health care and social services industry provides “health care and social assistance for individuals,” which includes medical care, welfare assistance, and family services, just to name a few. This industry accounts for nearly 16% of the total employment in Eastern Indiana, which surpasses the state and national averages by 3.8% and 3.5%, respectively. Although the average annual wage offered by health care positions in 2004 (\$31,384) is only slightly higher than the average annual wage in 2004 (\$30,127), wages in this industry have been steadily increasing over the past decade (see Figure 7).

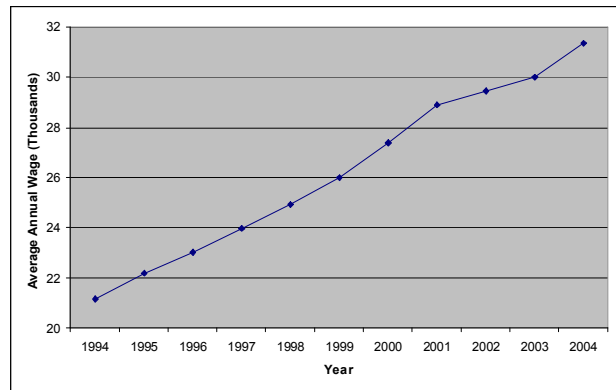


Figure 7. Average Annual Health Care Wage in EGR 6.

Nearly 70% of the 642 facilities offering health care and social services in the region deal in ambulatory health care services such as personal physicians, dentists, and home health care. These facilities generally employ up to 100 people with most retaining less than twenty-five employees each. Large health care and social services employers (more than 500 employees) in Eastern Indiana include Ball Memorial Hospital, Reid Hospital, Fayette Memorial Hospital, Henry County Memorial Hospital, and Richmond State Hospital.

Employment in the health care industry has been rising at a steady rate over the past ten years, and both the DWD and time trend predictions indicate employment will continue to rise through 2014 (see Figure 8 below). These data are not surprising as the population in Eastern Indiana continues to age, requiring additional health care and social services.

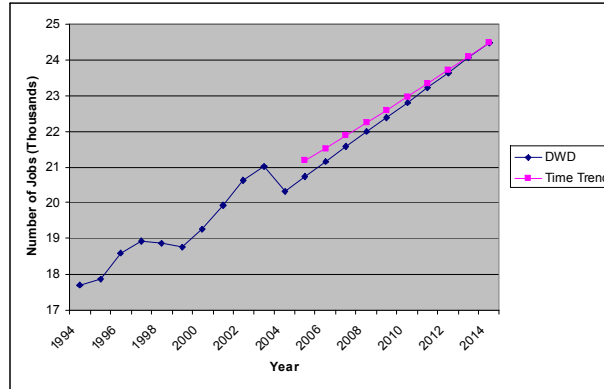


Figure 8. Number of Health Care and Social Services Jobs in EGR 6.

C. Agriculture

The agriculture industry, which includes crop and animal production, accounts for less than 1% of the total employment in Eastern Indiana. However, the potential location of bio-fuel facilities to this area is likely to increase this number in the next decade. Similarly, such facilities are likely to raise the average annual agriculture wage although data already show a solid increase in the average annual wage offered in the agriculture industry over the past ten years (see Figure 9).

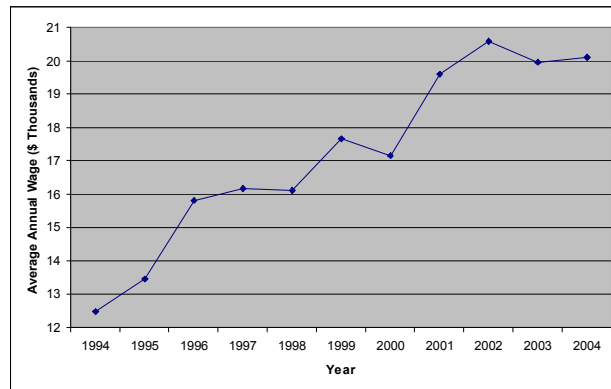


Figure 9. Average Annual Agriculture Wage in EGR 6.

Most agriculture-related businesses in Eastern Indiana retain less than ten employees. These small businesses mainly consist of small farms, greenhouses, and orchards. Larger agricultural employers include dairies and agricultural product suppliers. A list of the top five agricultural employers in Eastern Indiana can be found in Table 6.

Employer Name	Industry	Location	Employer Size
Smith Dairy	Dairy	Richmond	100-249
Harvest Land Co-Op	Agricultural Products	Lynn	20-49
Jacobs Orchard	Orchard	New Castle	10-19
Precision Soya	Seed & Grain Cleaning	New Castle	10-19
Ran-Del	Agricultural Products	Parker City	10-19

Table 6. Major Agricultural Employers in Eastern Indiana.

DWD predictions for the Eastern Indiana agriculture industry show a slight rise in the number of jobs while time trend forecasts show the number of jobs on the decline (see Figure 10). The location of bio-fuel facilities would lead to the creation of higher paying jobs requiring more skilled workers. It is also important to consider that there may be numerous uncoun- ted jobs and wages in an industry such as agriculture where many family farmers and illegal immigrants do not report income.

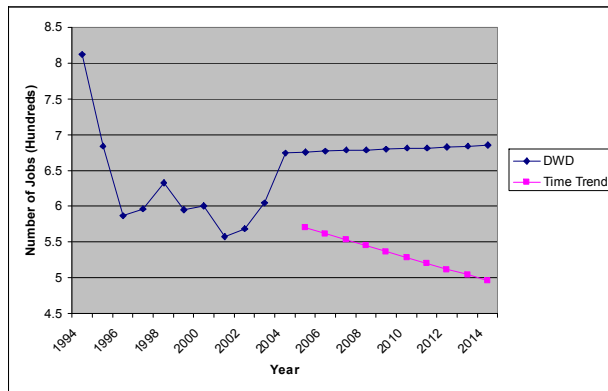


Figure 10. Number of Agriculture Jobs in EGR 6.

D. Transportation and Warehousing

The transportation and warehousing industry accounts for about 2.8% of the Eastern Indiana employment share, slightly less than the 4% national average. This industry deals with the transportation of goods and people, including the postal service, and the storage of products. The average annual wage offered by this industry has been rising for the past nine years (see Figure 11), and, at \$34,323, is reasonably above the region average of \$30,127 per year.

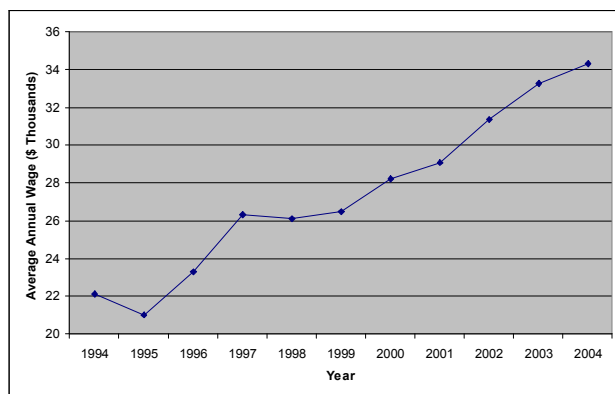


Figure 11. Average Annual Transportation Wage in EGR 6.

The majority of establishments categorized in the transportation and warehousing facilities are small businesses employing less than ten people. Many of these

companies offer towing and wrecker services, trucking services, and self-storage services. Recently, warehousing and trucking companies have begun locating their facilities to the area, and will likely require additional personnel.

Time trend predictions reveal a probable decline in the number of transportation and warehousing jobs (see Figure 12). However, these predictions do not take into consideration the recent growth of warehousing facilities along the I-70 and I-69 corridors. Recent changes to state inventory tax laws make locating these types of facilities to the area more economically attractive to companies. As this industry continues to expand in this region, more jobs will be created requiring managerial and transportation specialists.

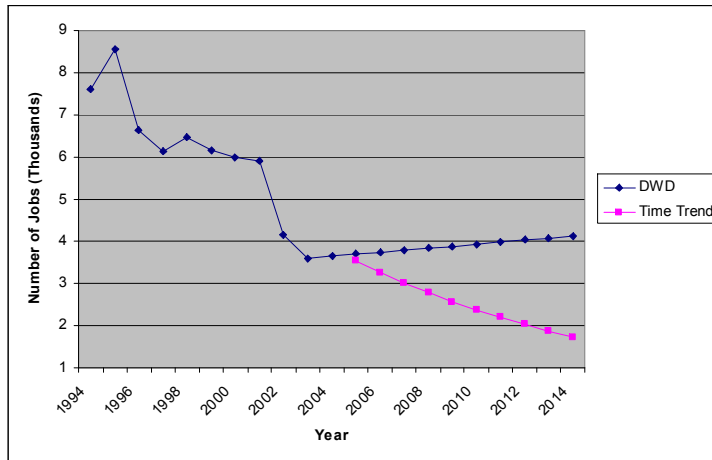


Figure 12. Number of Transportation Jobs in EGR 6.

III. Critical Occupation Shortages

Identification of Critical Occupations

The identification of critical occupations represents an important milestone in this research report. The process through which these determinations were made blended (i) judgment, (ii) input from employers, and (iii) analysis of data and trends, as described below. The outcome identified the following occupations as critical to the growth of Eastern Indiana:

- Health Diagnosing and Treating Occupations
- Health Technologists and Technicians
- Life Scientists
- Business Operations Specialists
- Metal Workers and Plastic Workers
- Truck Drivers – Heavy Tractor Trailers

These occupations share at least these three elements in common: (i) they are critical to industries that we expect to have reasonably strong hiring in the forecast period 2006-2012, (ii) they pay, or are expected to pay, wages at or above the average for the region,

and (iii) they support industries that export a product or service to the economy outside the region, and thus their expansion can add to regional economic growth. These occupations fit, we believe, the essence of the Initiative – namely, to grow the region economy through growth in high-paying jobs.

All but one of these occupations – Truck Drivers/Heavy Tractor Trailer Operators – are occupational classifications at the three digit SOC level. These in fact encompass a number of other, more specific occupations at higher levels of disaggregation. Our decision to make the identification at this level reflects the high level of judgement, and correspondingly lower levels of uncertainty, involved in the identification, the similarities in training and skills across these broader occupational categories, as well as the desire to preserve the ability to adapt the occupations as more information in this project is collected. Consistent with the methodology described in the Planning Application, the specific occupational and skill shortages will be verified along with the primary research of root causes during the Executive Interview process originally slated to begin 11/7/05.

We now turn to a more complete description of the methods used to make this identification.

Ranking of Occupations -- Methodology

We began by using a purely data-driven process, pulling together three separate sources of information on occupational growth, compensation, and local concentration. This involved ranking the 87 three-digit occupations according to four criteria:

- (i) projected employment growth (net), 2002-2012
- (ii) projected employment growth (percent), 2002-2012
- (iii) average annual earnings, 2003
- (iv) location quotient (U.S. base) of industry with highest employment, 2004

This method was intended to help identify occupations that at least partially fulfilled the basic criteria for critical occupations for purposes of the Initiative. Both employment growth, and percent employment growth, were included as separate items in the ranking so that the number of employees in any given occupational category would not unduly influence the findings.

Employment growth by three-digit SOC was based on high, medium, and low projections of eastern Indiana employment by two-digit NAICS industry classification. Those forecasts were based upon the DWD projections, as well as a trend analysis of the history of annual employment in the 20 industries since 1994, as described below. Only the medium forecast was used for the purpose of occupational ranking.

The difference between this forecast, and the DWD projection by industry for year 2012, was used to calculate a scaling factor for adjusting the DWD occupational projections for

each industry. The occupations were then aggregated across industries to derive the implied occupational projections, which went into the growth criteria used in the ranking.

The annual earnings information was computed as the weighted average of the annual average wages of the four-digit occupations provided by DWD for the year 2003, using the employments of the disaggregated occupations within each three-digit SOC class as the weights.

Finally, the location quotient of a given occupation was computed as the location quotient (U.S. based) for the industry with the largest employment share of the occupational employment total, using annual data from 2004. Since there were only 18 industries with computable LQ's (mining and utility employment data are suppressed), the score for this criteria was scaled to be comparable to the rank information for the other items (which vary from 1 to 87).

Ranking of Occupations – Results

From the outcome of this ranking, shown in Table 7, it is easily seen that the services related occupations, particularly in health services, dominate the top spots in the list. Health Diagnosing and Treating Practitioners occupations, which we have designated as a critical occupation, were ranked highest of all in growth. Of the ten highest ranked occupations, four are predominantly found in health services industries. The Health Care industry is one in which Region 6's LQ is slightly higher than the national average and is higher in the more highly urbanized areas than the rural areas of the Region. This industry is sensitive to the demands of the citizens of the Region and with a relatively older population a consistent demand for health care services will exist. In addition this industry is sensitive to the demands of other industries of the Region that have needs for the services of the health care industry. This industry is important for the manufacturing industry sector in meeting their needs for the health, diagnostic and rehabilitative care associated with the care, assessment and injuries of their workforce.

Many of the occupations, including the counseling occupations, and primary and secondary school teachers, do not represent export industries whose growth can be expected to fuel regional growth and were not given further consideration. Still others were judged to be too small, or too low paying, to be judged as critical. Finally, in the case of post-secondary school teachers, ranked highest of all 87 occupations overall, it was felt that the hiring for these positions took place in a national or sub-national market, so that labor force initiatives in eastern Indiana could be expected to have only limited impacts on growth.

Table 7. Ranking of Critical Occupations in EGR 6.

Occupation Title	Growth Rank	Pct. Growth Rank	Earnings Rank	LQ	Overall Rank
Postsecondary Teachers	2	7	4	14.50	1
Health Diagnosing and Treating Practitioners	1	8	9	9.67	2
Advertising, Marketing, Promotions, Public Relations, and Sales Managers	19	12	2	1.00	3
Other Management Occupations	13	23	8	14.50	4
Counselors, Social Workers, and Other Community and Social Service Specialists	5	4	41	9.67	5
Miscellaneous Counselors, Social, & Religious Workers	18	1	37	9.67	6
Primary, Secondary, and Special Education School Teachers	10	27	19	14.50	7
Occupational and Physical Therapist Assistants and Aides	22	3	38	9.67	8
Health Technologists and Technicians	6	15	44	9.67	9
Other Healthcare Support Occupations	3	2	64	9.67	10
Sales Representatives, Services	17	14	10	48.33	11
Life Scientists	32	31	18	9.67	12
Supervisors, Construction and Extraction Workers	16	16	16	43.50	13
Nursing, Psychiatric, and Home Health Aides	4	10	68	9.67	14
Social Scientists and Related Workers	27	6	50	9.67	15
Business Operations Specialists	43	37	17	1.00	16
Financial Specialists	14	22	14	48.33	17
Supervisors, Sales Workers	23	34	23	19.33	18
Other Teachers and Instructors	9	5	71	14.50	19
Top Executives	57	42	1	1.00	20
Other Personal Care and Service Workers	8	9	75	9.67	21
Operations Specialties Managers	58	51	3	1.00	22
Sales Representatives, Wholesale and Manufacturing	55	47	13	1.00	23
Construction Trades Workers	15	33	25	43.50	24
Other Education, Training, and Library Occupations	11	17	78	14.50	25
Computer Specialists	12	11	11	87.00	26
Supervisors of Installation, Maintenance, and Repair Workers	54	54	12	1.00	27
Lawyers, Judges, and Related Workers	42	44	7	29.00	28
Entertainers and Performers, Sports and Related Workers	28	19	63	14.50	29
Supervisors, Personal Care and Service Workers	34	36	45	9.67	30
Life, Physical, and Social Science Technicians	40	45	40	1.00	31
Entertainment Attendants and Related Workers	20	13	83	19.33	32
Engineers	68	63	5	1.00	33
Food and Beverage Serving Workers	7	25	84	24.17	34
Other Healthcare Practitioners and Technical Occupations	41	78	27	1.00	35
Librarians, Curators, and Archivists	47	57	31	14.50	36
Supervisors, Transportation and Material Moving Workers	62	66	21	1.00	37
Extraction Workers	37	43	28	43.50	38
Drafters, Engineering, and Mapping Technicians	61	70	20	1.00	39
Supervisors, Production Workers	75	61	15	1.00	40
Vehicle and Mobile Equipment Mechanics, Installers	51	41	43	19.33	41
Agricultural Workers	26	24	42	62.83	42
Legal Support Workers	38	38	51	29.00	43
Media and Communication Workers	21	18	47	72.50	44
Other Installation, Maintenance, and Repair Occupations	73	52	34	1.00	45
Architects, Surveyors, and Cartographers	31	21	22	87.00	46
Other Sales and Related Workers	25	26	33	77.33	47
Electrical and Electronic Equipment Mechanics, Installers, and Repairers	49	65	30	19.33	48
Other Food Preparation and Serving Related Workers	24	32	85	24.17	49
Helpers, Construction Trades	29	20	77	43.50	50
Fire Fighting and Prevention Workers	48	58	35	29.00	51
Supervisors, Food Preparation and Serving Workers	45	40	62	24.17	52
Funeral Service Workers	33	35	70	33.83	53
Supervisors, Office and Administrative Support Workers	76	69	26	1.00	54
Information and Record Clerks	59	39	65	9.67	55
Art and Design Workers	46	49	32	53.17	56
Media and Communication Equipment Workers	30	28	36	87.00	57
First-Line Supervisors/Managers, Protective Service Workers	52	72	29	29.00	58
Law Enforcement Workers	66	56	46	29.00	59
Assemblers and Fabricators	86	86	24	1.00	60
Printing Workers	70	75	52	1.00	61
Physical Scientists	44	64	6	87.00	62
Metal Workers and Plastic Workers	87	83	39	1.00	63
Building Cleaning and Pest Control Workers	72	50	74	14.50	64
Other Farming, Fishing, and Forestry Workers	35	29	87	62.83	65
Secretaries and Administrative Assistants	81	67	57	9.67	66
Supervisors, Farming, Fishing, and Forestry Workers	36	30	86	62.83	67
Other Production Occupations	84	76	55	1.00	68
Personal Appearance Workers	56	68	60	33.83	69
Woodworkers	74	87	61	1.00	70
Material Moving Workers	85	79	58	1.00	71
Cooks and Food Preparation Workers	71	46	82	24.17	72

Although Metal Workers and Plastics Workers occupations rank only 63rd of the 87 three-digit occupations in Eastern Indiana, they have nonetheless been identified as a critical occupation in this report. We turn to the justification for that selection, as well as the four-digit Truck Drivers – Heavy Tractor Trailers, in the next section.

Other Critical Occupations

We believe that the analysis above is deficient in at least two crucial respects:

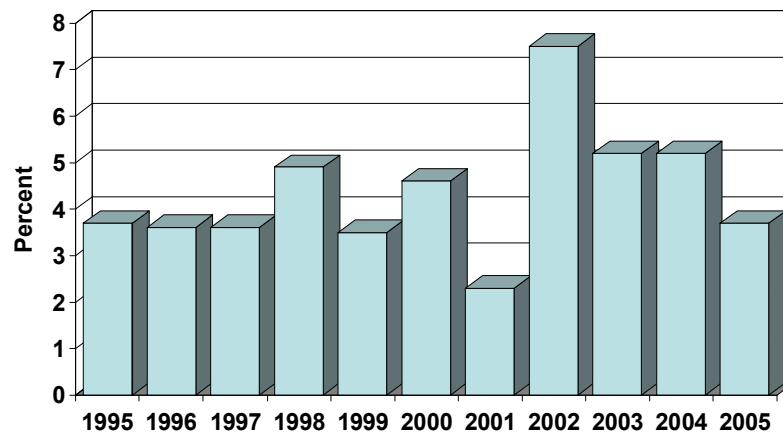
- (i) The growth in employment used to rank occupations statistically in the analysis above is a *ceteris paribus* definition. That is, it represents the growth in the number of jobs that is expected to occur under no change in development policies or strategies.
- (ii) Even when slow or negative growth exists in net employment demand, new openings can be significant when the current workforce is older than average.

One of the consistent findings of our industry analysis has been the strong concentration of heavy manufacturing in general, and production/transportation jobs in particular, in eastern Indiana. The employment requirements of manufacturers, however, have been driven steadily downward, in part due to the rapid growth in productivity.

In the U.S. economy, manufacturing productivity has grown at an average rate of 4.4 percent per year since 1995, as seen in Figure 13. That means that, on average, factories can produce the same output today with approximately 65 percent of the workforce they employed ten years ago. But more importantly, the productivity improvements in the workplace have made the fewer production jobs that remain more knowledge-intensive than ever before.

The metal workers and plastics workers occupations had more workers in eastern Indiana in 2002 than any other three-digit occupation other than retail sales. Yet their projected loss of 1,560 in the 2002-12 interval is also larger, in absolute terms, than any other occupational category as well. We nonetheless contend that given the relatively high pay of these jobs, and the competitive advantage of the industries that employ them in eastern Indiana, that policies which increase the supply and the quality of workers in these occupations are consistent with the purpose of the Initiative.

Figure 13. U.S. Manufacturing Productivity Growth, 1995-2005.



Patrick Kiely, President & CEO of the Indiana Manufacturers Association, defines Advanced Manufacturing in Indiana as any manufacturer that is still in business. While there may be some element of truth to that definition, clearly those manufacturing companies that remain in business will be those companies whose workforce possesses the skills required to increase their production and innovation, and whose ownership/management has the requisite business operations specialists to help grow their company. This industry, made up of many supplier companies, is sensitive to the costs of fuel, low inventory and the requirements of just-in-time delivery. While many companies are moving their low-skill manufacturing operations to Mexico or third world countries, there continues to be a need to maintain US based operations for these reasons. The Region has, as well, many new manufacturing companies that are growing by developing new ideas and taking them to market with the skill sets of a young workforce. In the critical skill sets section you will see the emphasis on entrepreneurial skills. These skills are for the new start entrepreneur, as well as, the product development within existing companies. Many of our existing companies have the potential to be entrepreneurial with the retooling of their aging workforce with the skills required to transform their company's level, quality and methods of production.

A second occupation not ranked highly in the analysis, yet included in the critical occupations submitted in this report – Truck Drivers – Heavy Tractor Trailers – was identified based upon feedback from area developers and recent events.

Consistent with changes in State legislation affecting the inventory tax and special funding for the Intermodal located west of New Castle on I-70 there is an expectation that the Transportation, Distribution and Logistics industry can realize a meaningful expansion in the forecast period. Strategically located with Interstate 70 to the south and Interstate 69 to the west, along with the concentration of manufacturing industry, eastern Indiana is well positioned to take advantage of the new tax climate for warehouse and distribution Centers.

The Region expects an increased demand for workers in this industry as a result of the Dollar General and Walmart Distribution Centers located just to the north and west of the Region on Interstate 69. While the location for the Intermodal facility on Interstate 70 will take advantage of a combination of transportation modes, i.e. combining rail and truck at a single site, it is expected that future demand will develop for subassembly operations to converge as parts from different sources begin to converge and then are shipped to final assembly or for final distribution. This industry will also encompass logistics operations.

The Transportation & Warehousing industry, while empirically appears to be fairly small in employment share, is affected by how the trucking portion of this industry reports employment. The trucking industry is one in which the actual industry employment appears to be concentrated in a few states where the corporate offices of the trucking industries conduct their business due to the friendliness of the state's laws for this industry. Indiana is not one of those states and therefore, while employed locally, many workers in this industry are not represented in the state's empirical data. On the other hand this is an industry with an average wage that exceeds the Region's average wage by nearly 14%. Combining the sensitivity the Warehouse and Transportation industry to change in the tax climate and the development of the Intermodal for the Region, this industry is expected to grow at a higher rate than projected. These factors combined with the proximate location of two new warehouse distribution centers are expected to positively affect the growth and demand for workers in the both Truck Driving – Heavy Trailers and Business Operations Specialists.

Eighty-five percent of the labor force of the year 2010 is already employed, many who have not updated his/her skills for decades while the technology is rapidly passing both the individuals and their companies by. Business productivity and efficiency improvements of the future will in part be based upon the competencies of the staff that are functioning in key human resource, logistics and analyst type positions for companies aimed at increasing operational efficiency and effectiveness. Companies can no longer afford assigning the human resource functions to someone who does not possess the required skill sets for the proper management of the resource and cost of the human resource capital investment. Business Operations Specialist Occupations, while important to the transportation and warehousing industry, are imperative for the success of all of the key industries chosen by the E-Team.

An emerging industry of the Region is in the Agribusiness sector. While statistically the sector numbers appear small, this is due in part to how the employment in this industry is accounted for in the empirical data and in reality it is much larger. It is important to note that this industry is, however, growing. During the community forums there was nearly unanimous feedback that this industry was one which is expected to grow from the local perspective. The projected growth was ranged from bio-fuels, value added research in existing operations, new CFO locations and expansions, and meat slaughtering operations. Within this projected growth there was a need articulated for the Life Science and Business Operations Specialist occupations to meet the industry needs. While the average annual pay of this industry lags the annual average pay for the Region by 33%,

the types of occupations targeted are those that pay above average and require advanced skills. The growth of this industry will be sensitive to the Indiana State Department of Agriculture's Strategic Plan and initiatives to grow this industry in Indiana. Specifically Region 6 should be able to take advantage of the areas of Grains & Oilseeds, Pork Production, and bio-fuel and other alternative fuel initiatives.

Table 8 represents a combination of primary and secondary research into the occupations and companies who have been or will be targeted for Executive Interviews during SSI Project Phase II. This table provides company names, geographic location in the Region and occupational shortages. During Phase II Executive Interviews will verify the shortages and identify the root causes.

Table 8. Occupational Shortages by Employer and Location.

Organization	County Forum	Health Diag & Treating Pract.	Hlth Tech & Technicians	Life Scientist	Business Operations Specialists	Metal & Plastic Workers	Truck Drivers Heavy
3M	Blackford				X		X
Blackford Community Hospital	Blackford	X	X		X		
Gripco Fasteners	Blackford				X		X
Townsend Farms	Blackford			X			X
Hartford Concrete Products	Blackford				X		X
Tru-Form Manufacturing	Blackford				X	X	X
Attlin Construction	Delaware				X		X
Ball Associates	Delaware	X	X		X		
Ball Memorial Hospital	Delaware	X	X		X		
Cardinal Health System	Delaware	X	X		X		
CMHS	Delaware	X	X		X		
Delaware Machine & Tool	Delaware				X	X	X
Magna Drive Train	Delaware				X	X	X
Maxon Corp.	Delaware				X	X	
Medical Consultants	Delaware	X	X		X		
Midwest Metals	Delaware				X	X	X
Ontario Systems	Delaware				X		
Pathologists Associated	Delaware	X	X		X		
Red Gold, Inc.	Delaware			X	X		X
Fayette Memorial Hospital	Fayette	X	X		X		
Reidman Automotive Group	Fayette				X	X	X
Roots Blower	Fayette				X	X	X
Stant	Fayette				X	X	X
Visteon	Fayette				X	X	X
Cardinal Pharmacy	Henry	X	X		X		
Clouse Concrete	Henry				X		X
Draper, Inc.	Henry				X	X	X
Henry County Memorial Hospital	Henry	X	X		X		
Metaldyne	Henry				X	X	X
Switzer Tank Lines, Inc.	Henry				X		X
Alphabet	Jay				X		X
Createc Corporation	Jay				X	X	X
FCC, Indiana	Jay				X	X	X
Jay County Hospital	Jay	X	X		X		
Moser Engineering	Jay				X	X	X
Qualtech Tool	Jay				X	X	X
Portland Forge	Jay				X	X	X
St. Gobain Container	Jay				X		X
Tyson Foods - Mexican Original	Jay			X	X		X
Anchor Glass Container	Randolph				X		X
Astral Industries	Randolph				X	X	X
Central Manufacturing, Inc.	Randolph				X	X	X
Culy Construction	Randolph				X		X
Frank Miller Lumber	Randolph				X		X
RG Applegate	Randolph				X	X	X
St. Vincent Hospital	Randolph	X	X		X		
Tomasco Indiana LLC	Randolph				X	X	X
Workhorse - Navistar	Randolph				X	X	X
Workhorse Custom Chassis	Randolph				X	X	X
Hill's Pet	Rush			X	X		X
Innatech	Rush				X	X	X
Reid Hospital	Rush	X	X		X		
Rush Memorial Hospital	Rush	X	X		X		
Visteon	Rush	X			X	X	X
Wal-Mart	Rush				X		X
D & L Industrial Finishes	Union				X	X	X
NSK	Union				X	X	X
Ahaus Tool & Engineering	Wayne				X	X	X
Autocar	Wayne				X	X	X
Mosey Manufacturing	Wayne				X	X	X
Reid Hospital	Wayne	X	X		X		
Richmond State Hospital	Wayne	X	X		X		
Taconic Farms	Wayne			X	X		

A. Health Diagnosing and Treating Practitioners

Occupations categorized into SOC 29-1000, Health Diagnosing and Treating Practitioners, include various types of medical doctors, therapists, and registered nurses (R.N.). Positions within this minor group require specific schooling and licensing to practice their trade. For example, registered nurses (29-1111) are required to graduate from an accredited nursing program, which may take 2-4 years, and pass national and state exams². Once educational requirements have been completed, most graduates receive additional on-the-job training through a supervised residency at a hospital or other health care facility. Positions in this group require a knowledge of medicine and therapy or psychology. Due to a high level of personal interaction required by most occupations in this group, Social Skills such as social perceptiveness and service orientation are necessary. Several Basic skills, such as math, reading comprehension, and active listening, must also be exhibited by persons interested in these occupations.

A look at typical wages in this occupational group reveals above average earnings in nearly all occupations. Entry-level annual wages range between \$19,607 and \$131,865, with only two occupations, recreational therapists and dietitians, falling below the average annual wage. All experienced wages are above the average annual wage with the median wage being \$62,460. A more complete look at wage data is provided in Table 9 below.

	Entry-Level	Experienced
Average Wage	\$53,154	\$86,871
Median Wage	\$39,321	\$62,460
Low Wage	\$19,607	\$30,756
High Wage	\$131,865	\$189,262

Table 9. Health Practitioner Wage Data.

Short- and long-term projections reveal a severe shortage of health practitioners in this region (see Table 10 below). Due to an aging population and population decrease, the supply of qualified health practitioners cannot keep up with the demand. Area colleges and universities are producing nearly 200 new graduates a year, however, many of these graduates leave the region to pursue opportunities elsewhere. Additionally, no school in the region offers doctorate of medicine (M.D.) degrees so the region is dependent on in-migration to fill these occupations. Extreme shortages in the health practitioner group were confirmed during community forums with many counties expressing shortages of R.N.s and physicians. The complete occupational shortage worksheet for this group is provided in Appendix B.

² http://www.learnmoreindiana.org/@adults/adults_education/career_profiles/100179.xml/education_and_training

	Short-term		Long-term								
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Lower	137	204	270	336	403	469	535	602	668	735	802
Middle	143	213	282	351	421	490	559	629	698	767	837
Upper	147	219	290	361	433	504	575	647	718	789	861

Table 10. Health Practitioner Shortage Projections.

B. Health Technologists and Technicians

Occupations categorized into SOC 29-2000, Health Technologists and Technicians, include various types of laboratory and diagnostic personnel. Positions within this minor group require some level of college training ranging from a certificate program to a 4-year degree, and licensing at the state and national levels. After completing educational and licensure requirements, graduates work in a supervised environment and may be eligible to pursue additional schooling for higher paying positions. For example, many licensed practical nurses (LPN) may earn a degree in nursing. The valuable skill sets for this group is similar to those useful for the health practitioners group including Social Skills and Basic Skills.

Typical wages in this occupational group are lower than average at the entry-level. Experienced wages range between \$23,651 and \$59,944, with nuclear medicine technologists (29-2033) and sonographers (29-2032) having the highest earning potential. A more complete look at wage data is provided in Table 11 below.

	Entry-Level	Experienced
Average Wage	\$26,106	\$36,708
Median Wage	\$22,370	\$35,577
Low Wage	\$16,543	\$23,651
High Wage	\$44,254	\$59,944

Table 11. Health Technology Wage Data.

Similar to the health practitioners group, projections for health technologists and technicians show a moderate occupational demand in the region (see Table 12 below). An aging population combined with advances in medical technology is creating a shortage of workers to meet demand in this region. Ivy Tech Community College is the main supply source for these occupations, but despite awarding nearly 200 degrees per year in these occupations, the region continues to lose qualified employees through out-migration. Another contributor to the shortages is the desire for higher-paying, higher-skilled positions. For example, many LPNs continue their studies to become RNs. With this additional education, people can out-migrate more freely to other parts of the country where wages may be higher. For the complete occupational shortage worksheet for this group, please see Appendix C.

	Short-term		Long-term								
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Lower	35	36	38	39	41	42	44	45	47	48	50
Middle	39	42	46	49	53	56	60	63	67	70	74
Upper	45	51	58	64	71	77	84	90	97	103	110

Table 12. Health Technology Shortage Projections.

C. Life Scientists

The Life Scientists group 19-1000 includes occupations that are especially important to the agriculture industry, and that focus on the study of plants, animals, and diseases. These careers require at least a bachelor’s degree with many of them requiring additional education. While in school, most prospective life scientists complete an internship to gain applied experience in the work environment. Skill sets useful to these occupations include a myriad of competencies. Life scientists should be strong in the Basic Skills of math, reading comprehension, science, writing, and speaking. They should also have complex problem solving and judgment and decision making abilities. Finally, life scientists usually demonstrate various Technical Skills such as equipment selection and quality control analysis.

Wage data are not available for every occupation within this group. A cursory glance at the wage data for certain occupations indicate above average wages for both entry-level and experienced workers. For instance, the average Indiana wage for an animal scientist (19-1011) is \$58,850. Similarly, the average wage for a microbiologist (19-1022) in Indiana is \$63,310.

Demand projections for the life scientists group demonstrate a moderate excess of positions over the next decade (see Table 13 below). However, these projections are based on current employment trends which do not take into account the growth potential of the agriculture business in this region. As new agribusinesses locate to the area, a demand for occupations within the life scientists group will be created resulting in a shortage due to out-migration. Because it is impossible to foresee how many companies may relocate their agribusinesses to the area, it is difficult to quantify this occupational shortage. A complete life scientists shortage worksheet can be found in Appendix D.

	Short-term		Long-term								
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Lower	-3	-6	-8	-11	-14	-17	-20	-23	-26	-29	-32
Middle	-3	-6	-8	-11	-14	-17	-20	-23	-26	-29	-32
Upper	-3	-6	-8	-11	-14	-17	-20	-23	-26	-29	-32

Table 13. Life Scientists Shortage Projections.

D. Business Operations Specialists

The Business Operations Specialists, minor group 13-1000, include a variety of human resource professionals, buyers, and other business professionals, and are

important to several industries. The majority of business operations occupations require at least a bachelor's degree in business or a field that relates closely to the desired occupation. For instance, a cost estimator (13-1051) may hold a degree in architecture, construction, engineering, statistics, or physical science, just to name a few. Upon graduation, some new employees are paired with an experienced employee to learn more about their work responsibilities. Skills useful to business operations occupations include Basic Skills, Complex Problem Solving Skills, and Resource Management Skills. Additionally, many occupations within this group require skills from the social skills set such as negotiation, persuasion, and social perceptiveness.

Wages in this occupational group are usually above average for experienced workers while entry-level wages mostly fall below the average. Higher paying occupations in this group include purchasing agents (13-1023) and management analysts (13-1111). A more complete look at wage data is provided in Table 14 below.

	Entry-Level	Experienced
Average Wage	\$27,887	\$43,828
Median Wage	\$27,532	\$40,467
Low Wage	\$12,346	\$23,762
High Wage	\$57,996	\$80,057

Table 14. Business Operations Wage Data.

Short- and long-term projections reveal a moderate need for business operations specialists in this region over the next decade (see Table 15 below). This particular group of occupations is important to many industries in Eastern Indiana, and will become more vital as the agribusiness and transportation industries grow, and the manufacturing industry becomes more technologically advanced. Ball State University is currently the region's source for filling these occupations, however, the out-migration of these graduates will likely lead to occupational shortages over the next decade. For the complete business operations specialists shortage worksheet, please see Appendix E.

	Short-term		Long-term								
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Lower	-7	-7	-8	-8	-9	-9	-10	-10	-11	-11	-12
Middle	6	11	17	22	28	33	39	44	50	55	61
Upper	18	29	41	52	64	75	87	98	110	121	133

Table 15. Business Operations Specialists Shortage Projections.

E. Metal Workers and Plastics Workers

Occupations categorized into SOC 51-4000, Metal Workers and Plastic Workers, include various types of skilled trades, machinists, and welders. Most positions within this minor group require prospective employees to complete an apprenticeship although some colleges offer formal training in some of the

occupations. For example, once welders complete their formal training or apprenticeship, they will work with an experienced welder to apply their knowledge and learn how to operate necessary equipment. Skills useful to persons considering entry into this group are all Technical Skills and mathematics.

A look at typical wages in this occupational group reveals above average earnings in many of the experienced positions. Most entry-level wages are below the average with occupations such as tool and die makers and numeric tool and process control programmers making above average. A more complete look at wage data is provided in Table 16 below.

	Entry-Level	Experienced
Average Wage	\$24,491	\$35,303
Median Wage	\$23,577	\$33,285
Low Wage	\$16,745	\$22,378
High Wage	\$42,727	\$63,005

Table 16. Metal and Plastic Workers Wage Data.

Worker shortage predictions in the metal and plastic workers group indicate an excess of workers over the short- and long-term (see Table 17 below). This is likely due to the overall decline of the manufacturing industry so it is difficult to quantify the true shortage of workers this area will experience over the next decade. Although it appears an excess of these workers exist, it is important to consider very few people are being trained to meet the needs of the occupations in this group, and those who are trained are leaving the area. For example, a shortage of skilled trades such as welders and tool and die makers was expressed at nearly every community forum. These projections also echo the potentially dire situation this region could be in if something is not done to create more jobs, especially in the manufacturing area since it plays such a vital role in the economy of Eastern Indiana. For the complete occupational shortage worksheet, please see Appendix F.

	Short-term		Long-term								
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Lower	-349	-297	-246	-194	-143	-91	-40	12	63	115	167
Middle	-255	-353	-452	-550	-649	-747	-846	-944	-1042	-1141	-1239
Upper	-161	-212	-264	-315	-367	-418	-470	-521	-573	-624	-676

Table 17. Metal and Plastic Workers Shortage Projections.

F. Truck Drivers, Heavy and Tractor-Trailer

Heavy Truck and Tractor-Trailer Drivers are responsible for the safe transportation of various goods including livestock. Most truck drivers attend a formal training program to earn their commercial driver's license (CDL), and are then assigned to work with an experienced driver for some amount of time before operating their own truck. Persons seeking this type of work should be

mechanically inclined, knowledgeable about regulations and laws, and experienced in map reading. Specifically, they should have a strong grasp on the skills outlined in the Technical Skills group including operation and control and equipment maintenance.

A look at wages in this occupational group reveals above average earnings for experienced drivers. Entry-level annual wages fall below the average by nearly \$7,000 per year. A complete look at wage data is provided in Table 18 below.

	Entry-Level	Experienced
Wage	\$23,171	\$36,693

Table 18. Heavy Truck Driving Wage Data.

Short- and long-term projections reveal a moderate shortage of heavy truck and tractor-trailer drivers in this region (see Table 19 below). Despite beginning with an occupational excess of seven heavy truck drivers per year, this number turns into a shortage due to a lack of training programs in the area and the out-migration of qualified drivers. While the short-term shortage projection of twenty in 2008 is not excessive, the long-term shortage projection of eighty-eight will likely have a negative affect on both the transportation and manufacturing industries in the region. For the complete occupational shortage worksheet, please see Appendix G.

	Short-term		Long-term								
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Lower	-100	-142	-184	-226	-268	-310	-352	-394	-436	-478	-520
Middle	2	11	20	29	38	47	56	64	72	80	88
Upper	106	167	228	289	350	411	472	533	594	655	716

Table 19. Heavy Truck Driver Shortage Projections.

IV. Skill Shortages

In addition to the skills specific to the occupations and industries identified by this report, the team uncovered several cross-cutting skill shortages during community forums. These results are listed in Table 20 below and include communications, reading comprehension, computer literacy, mathematics and science, problem solving, leadership, and work ethics. While this list is not exhaustive of the skill shortages expressed in all counties, these shortages appear to be the most problematic to companies in Eastern Indiana. Many of these skills are identified by sources such as O*NET and WorkKeys, and are skills relevant to many occupations in many industries. In speaking with community members, it became clear that while these skill shortages are problematic to the region now, the long-term impact is more severe.

Table 20. Skill Shortages Identified by County.

County	Reading and Comprehension	Computer Literacy	Math and/or Science	Problem Solving	Work Ethics	Leadership	Communications (Written and/or verbal)
Blackford		●	●	●	●	●	●
Delaware		●	●	●	●	●	●
Fayette	●		●	●	●	●	●
Henry	●	●	●		●	●	●
Jay		●	●	●	●	●	
Randolph	●	●	●	●	●	●	●
Rush		●	●	●	●		●
Union		●			●		●
Wayne	●	●	●	●	●	●	●

A. Written and Verbal Communications

Industry and community leaders in several counties recognized communications as a skill lacking in many employees. Communications is described as interacting with others to convey information effectively³, and may involve written or verbal communications with team members both internally and externally. O*NET groups both writing and speaking into the basic skills skill set, and has identified 214 occupations for which written and verbal skills are required. WorkKeys also recognizes communications as a vital part of employment, and focuses more on written communications.

B. Reading Comprehension

Many employers in Region 6 identified literacy and reading comprehension as a skill shortage within their companies. In many cases, employees have to seek additional guidance or clarification after reading memos, announcements, and instructions, and in extreme cases, personnel cannot read such documents. Both O*NET and WorkKeys recognize reading comprehension as a workforce skill with O*NET identifying 419 specific occupations that require some level of reading comprehension.

C. Computer Literacy

The increased dependency on computers in today’s businesses creates a new skill demand for the workforce in the area of computer literacy. Nearly all positions

³ <http://online.onetcenter.org/skills/>

require computer interaction on some level, from basic grocery sales to report writing to computer programming, and employers in this region are increasingly finding many potential employees do not have basic computer skills. Computer literacy, or familiarization with personal computers, is not explicitly identified by O*NET or WorkKeys as a skill but likely fits into the Technical Skills category within O*NET.

D. Mathematics and Science

With the large presence of manufacturing and health care in Eastern Indiana, companies are looking for employees with strong mathematics and science skills. Several community leaders and employers cited shortcomings in the workforce in these two areas. The Applied Mathematics and Applied Technology assessments offered by WorkKeys provide employers with a way to measure prospective employees' skills in these areas. O*NET also recognizes both mathematics and science as Basic Skills, and has identified 228 occupations that rely on one or both of these skill sets.

E. Problem Solving

Alan Saporita once said, "The best way to escape from a problem is to solve it," and community leaders and business owners in Eastern Indiana could not agree more. Unfortunately employers are discovering many prospective and current employees lack the basic problem solving skills necessary in today's workforce. O*NET recognizes critical thinking and complex problem solving as desirable skills, and has identified 319 occupations in which one or both of these skills is required.

F. Leadership

Across the board from government to manufacturing forum participants cited the need for leadership skills in the workplace as a critical skill needed. Individuals use this skill for choosing behaviors that both lead toward the accomplishment of tasks and support the relationships between team members. Another dimension of this skill is the attribute that fosters the entrepreneurial spirit in an individual to create a company or the development of a product within a company. While difficult to define it is evident when it does not exist.

G. Work Ethics

Most employers attending the community forums expressed concerns about the severe lack of work ethics plaguing the Eastern Indiana workforce. Employers have difficulty finding workers who are dependable and honest. In several instances, companies reported doing away with pre-employment drug-testing since most prospective employees could not pass the screening. Although O*NET and WorkKeys do not have a specific way to measure these skills, employers made clear the importance of work ethics to their businesses including the difficulty in finding reliable and proud workers.

V. Additional Research

A review of existing literature from each county in the region was performed to support the findings discussed in this report. The items selected for review were provided by local economic development corporations and community leaders, and focus on the strategic economic development of the communities of Eastern Indiana. It is important to note that the documents discussed below were selected due to their relevance to this report and are certainly not exhaustive of the region's strategic efforts.

A. Delaware County

The Muncie-Delaware County, Indiana Economic Development Alliance created a strategic plan entitled *Vision 2001 to 2006: A Report With Vision* to address the changes within an emerging economy and the business world. The report establishes a plan to promote economic development by addressing five areas of weakness that the county needs to invest in including developing workforce skills, fostering new business development, helping current businesses become more productive and competitive, improving infrastructure, and improving the quality of life. The strategic plan also references a 1999 study entitled "Target Industry Analysis Study." This study found that the Alliance should target the development of specific industries and businesses including machine tool, automobile parts, distribution, plastics, medical devices, headquarter and regional offices, high technology service, and manufacturing businesses.

B. Fayette County

The Fayette County Community Vision Plan of 2002 addresses areas challenging economic development as identified by residents and businesses in the community. Among those challenges is the absence of adult education opportunities, the need for workforce development opportunities, the lack of assistance programs for the agricultural industry, and a declining population.

The plan identifies goals that are prioritized and are given flexible time constraints of short-term, intermediate-term, long-term, and future tasks. These tasks include recommended objectives that should be secured in order to strengthen the community and become a "desired regional destination." The short-term and intermediate-term tasks include installing work-skill development and training programs, training the workforce for modern technology, and developing incentives for children to stay in school, while encouraging them to seek out opportunities in the community upon graduation. As part of the local economy's future tasks the community plans to develop local business forums and "provide free or reduced cost training to unemployed workers" (p.12). Future agricultural tasks include the creation of marketing and assistance programs for the agricultural industry including the marketing of local goods. Industries and other areas noted to be explored in the future are timber-oriented businesses, temporary and permanent local farmers markets, bed and breakfast establishments, and tourism.

C. Jay County

The 2005 Jay County Strategic Plan identifies several trends under the assumption that economic development and quality of life are closely intertwined. Among these is the growing importance that new and small business plays in growing the economy, there is a continued need to diversify the economic base, there are emerging opportunities in value-added agriculture, and the new, technologically skilled workforce has a desire to live in communities that provide a rich quality of life. Some weaknesses identified in the plan include the declining economy surrounding Wayne Township, increased competition for manufacturing, shrinking local business ownership, and lack of involvement of youth in leadership roles. In order to achieve the goals set forth in the plan, Jay County hopes to encourage entrepreneurs to start up or expand small businesses, grow the motor sport parts sector, better prepare graduating seniors to enter the workforce either through post-secondary education or job skills education, and grow the livestock and agriculture industries in the county.

D. Randolph County

Local elected officials in Randolph County expressed their notion of the “perfect community” in the *City of Winchester Strategic Plan*. Similar to problems identified during the community forums, this report cites negative growth trends and inadequate job opportunities as a barrier for economic growth in the county. Some of the root causes of these barriers include poor phone service, lack of professional service providers, and lack of entrepreneurs. Goals identified to improve the area economy include creating jobs in technology and manufacturing and improving infrastructure.

E. Rush County

In summarizing a recent planning session, the Rush County Economic and Community Development Corporation (ECDC) identified a number of challenges to reaching economic goals including population loss, lack of attractive housing for business executives, and a lack of sites and buildings for business growth. In order to mitigate these issues, the ECDC would like to grow agri-tourism. Other areas that provide opportunities for improving the local economy and growing population include the residential housing industry, the professional services industry, and the commercial entertainment industry.

In one forward-looking document entitled *Preliminary draft: Proposed economic development strategy*, the Rush County ECDC identified several objectives to meet its goal to improve the quality and availability of the workforce in Rush County. In order to obtain more competitive wages, the corporation plans on educating and encouraging local industries on state training incentives programs. In addition, the ECDC plans to increase the availability of higher paying jobs. To accomplish these goals, they plan to develop and expand a human resources roundtable that would be comprised of key industry representatives. Also, the community plans to recruit new, higher wage industries by developing an inventory of available sites and buildings for potential businesses, providing

general spec sheets for those facilities, and making incentive information available to those targeted industries.

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Appendices

APPENDIX A

Attendance Summary of County Community Forums

County	Date	Government/ Elected Officials City/County Council	Others/Staff	Community Based Organizations	DWD	Chambers of Commerce/Economic Development	Private Sector Business	Education	Total in Attendance
Delaware	10/24/05	8	9	6	1	1	33	12	70
Fayette	10/20/05	1	5	1	1	5	13	6	32
Union	10/18/05	3	3	1	1	2	2	2	14
Jay	10/14/05	1	10	3	0	3	12	2	31
Wayne	10/13/05	5	8	1	1	5	9	9	38
Randolph	10/11/05	7	6	1	1	4	23	2	44
Rush	10/06/05	1	5	3	2	2	23	3	39
Blackford	10/04/05	12	9	0	0	4	8	2	35
Henry	10/03/05	9	9	8	0	4	32	6	68

APPENDIX A (CONTINUED...)

Date	Government/Elected Officials/ City & County Councils	Community Based Organizations/Other	Chambers of Commerce/ Economic Development	Private Sector/ Business	Education
10/24/2005	Albany Town Council Deputy District Director Deputy Mayor, City of Muncie Mayor, City of Muncie Muncie City Council Yorktown Town Council	Community Foundation Delaware County Housing Authority Hillcroft Services	Muncie-Delaware Co. IN EDA	ADM Real Estate AG Edwards & Sons Caldwell Banker Lunsford Cardinal Health System Cornerstone Cntr. for the Arts Defur Voran Delaware Machinery & Tool E.C. Ed. Service Cntr. First Merchants Corp. GEA Architects, LLP Howell Farms Maxon Corp. McIntire Concrete Muncie Power Muncie Visitors Bureau Mutual Federal Savings Bank Old National Bank Pathologists Associated Printing Creations Star Financial Bank The Star Press U.S. Architects United Way - AFLCIO	Ball State University BSU Career Center Innovative Connector Ivy Tech Muncie Community Schools
10/20/2005	Mayor, City of Connersville	River Valley Resources	Connersville EDG Connersville/Fayette Co. COC Fayette County EDG	Cinergy Connersville Utilities Creative Investment Grp. Inc. Kemper CPA Group Mac Machine & Metalworks Ready Machine Riedman Automotive Group Stant Manufacturing, Inc. Taylor Home Center The News Examiner Visteon	Community Ed. Coalition Fayette School Corp. I.U. East Ivy Tech Whitewater Career Center
10/18/2005	Deputy Clerk/Treasury Union County Commissioner	River Valley Resources	Union Co. Development Corp.	Barnhizer Machine & Weld Liberty Herald Newspaper West End Bank	Union County School Corp.
10/14/2005	Jay County Commissioner	Community & Family Services Jay Community Center Jay/Randolph Dev. Services	JCDC Portland Area COC	Americare Communities Bank of Geneva Createc Jay County Hospital Locker's Touch of Country Moser Engineering Pacesetter Bank Portland Forge Tyson	Jay School Corporation Purdue

CONTINUED...

APPENDIX A (CONTINUED...)

Date	Government/Elected Officials/ City & County Councils	Community Based Organizations/Other	Chambers of Commerce/ Economic Development	Private Sector/ Business	Education
10/13/2005	Richmond City Council Wayne County Commissioner Wayne County Council	River Valley Resources SBDC	EDC of Wayne County Indiana State COC Richmond COC	Ahaus Tool & Engineering Burns Corporation Gannett Newspapers Nixon Tool Co. Richmond State Hospital Rosa Office Plus	I.U. East Ivy Tech Northeastern Wayne Schools Purdue Richmond Community Schools
10/11/2005	City of Union City Mayor, City of Winchester Winchester City Council Winchester Clerk	Community Foundation of Rand. Co.	Eastern IN Dev. District Randolph County EDC Winchester COC	Central Manufacturing Cockerill & Cockerill Cooler World, Inc. Frank Miller Lumber Homecasting.net Homegrown Broadcasting J & J Vending Matchett & Ward Insurance Ohio Valley Gas Potential Life Institute St. Vincent Randolph Hospital The News Gazette Tomasco Union City Body Co. Local 494 Winchester Golf Club Winchester Tech. Board Workhorse Custom Chassis YMCA	Randolph Central School Corp. Randolph Eastern Schools
10/6/2005		River Valley Resources Rush County Community Foundation Rush County Leadership Academy Rush Mem. Hospital Foundation		CGS Services Copeland Farm Credit Svs. Of Mid America Fralely & Schilling Hoeing Supply Indiana & Michigan Power Mainsource Bank Penman PKG Express Remax Real Estate Rush Memorial Trane Village Pantry	Ivy Tech Rush County Schools
10/4/2005	Blackford County Assessor Blackford County Auditor Blackford County Commissioner Blackford County Council City of Montpelier Hartford City Clerk/Treasurer Mayor, City of Hartford City State Senator		Blackford County EDC Hartford City COC	3M Blackford Community Hospital Community First Bank & Trust Dacra Glass Hartford City News Times Kiddie Kaboodle Pacesetter Bank Tru-Form Plastics	Blackford School Corp.

CONTINUED...

APPENDIX A (CONTINUED...)

Date	Government/Elected Officials/ City & County Councils	Community Based Organizations/Other	Chambers of Commerce/ Economic Development	Private Sector/ Business	Education
10/3/2005	Henry County Commissioner Henry County Surveyor Henry County Treasurer Mayor, City of New Castle New Castle City Council State Representative	Henry County Community Foundation Henry County United Fund Hillcroft HRDPC/Region 6 Interlocal CAP Kenny Irwin, Jr. Foundation Westminster Community Center	Eastern IN Development District Henry County EDC	Alpha Placement Services Ameriana Bank & Trust American Keeper Cinergy Clouse Construction, Inc. Community Tech Center Draper, Inc. Goodwin Brothers Auto H & R Block Hancock Communications, Inc. Henry County Visitors Bureau Lingle Real Estate Metaldyne New Caslte-Henry Co. Library Pro Green Rose City Bowl Smiley Body Shop Star Financial Bank Switzer Tank Lines, Inc. The Courier Times The Woodlands UAW Cap UAW Local # 371 UAW Local # 729 United Fund	Danielson Learning Center I.U. East Ivy Tech New Castle Area Career Programs New Castle Comm. School Corp.

APPENDIX A (CONTINUED...)

Henry County Facilitated Discussion Summary 10/03/05

1. Do you feel the data presented adequately reflect industries and occupations in your area?

- Out of date materials, many of the companies mentioned aren't around (Metaldyne, Westpoint Stevens, Modernfold)
- Education overshadowed the numbers, much of this influence is probably BSU
- Recognize a huge IT shortage, need better infrastructure/schools
- Experiencing brain drain, no incentive to get people back
- Consider demographics – aging workforce, housing availability, taxes
- Room for growth in life sciences, warehousing, transportation
- There is no coordinated, statewide initiative to attract new companies
- The data do not reflect current wages, census data are out of date
- County average household income is too high
- Check with local EDC for more current data
- Need more recreation – tourism, (Horseshoe facility, etc., Indiana Basketball Hall of Fame.
- Financial Institutions represented substantially. (5 banks in county)
- Draper Shade
 - Athletic Goods – 15%
 - Audio Visual Products – 60%
 - Window shade – 25%
- Heavy Industry Analysis
 - Need to further analyze
- Important to analyze with a focus on growing existing industries
 - Need to clearly understand the mix of what is
- Agribusiness data – We do not process our own agribusiness
- Human Services – how do they play out in the categories?
- Warehousing and transportation
 - Room for growth (I-70 and I-69)
- Definition of opportunities in life science initiatives – BioCrossroads, Venture Capital – Helping to get companies started
- Leadership from Indy – Life Science – Educational Facilities
- Involvement of Ball State University
- Out-migration of students – can't keep them educated
- Retail side of small business – growth
- Housing availability – is it desirable? – What's the infrastructure – “I think in Henry County we do” need to make community attractive to the eye – aging housing – want to buy just not what is for sale.
- Shopping, retail, entertainment, etc.
- Taxes compared to Indiana
- Name of companies are wrong in the presentation
- Data is OK
- Wages have changed since census

APPENDIX A (CONTINUED...)

1. Do you feel the data presented adequately reflect industries and occupations in your area? (CONTINUED...)

- Data doesn't reflect current wages
- No data about non-profit organization (social services). WHY?
- Raintree Programs should not be highlighted in the data. (Social need)

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Technical personnel, electricians, technicians, engineers (electrical, tooling), skilled trades, plumbers, builders, welders (16 weeks search to find 1 good employee)
- Industrial Engineers with finance background
- Utilities – electrical engineers with business
- Nurses – quality trained health care workers
- Pipefitters
- More flexible workforce – multiple jobs.
- IT Severe
- Brain drain
- IT personnel
- Large percentage of underemployed individuals
- Middle and upper management professionals
- Attitude of workers – don't get out of specialty
- Heavy truck operators with experience not going to work 9AM – 5PM
- Health care workers
- Foreign Language – educated speaker – Spanish
- Engineering Technology (Math – Science)
- Light industry – qualified skilled labor
- White collar jobs – Professional jobs
- Nothing to keep people here – occupations are being graduated
- No place to put the expertise
 - Iowa has a good program to attract them back
- Start leveraging what we do have
- Don't necessarily want to detach ourselves from Indy – ride the coat tails
- Labor is mobile – labor will go where the advantage is
- Not enough to attract small ent.
- Education is a strength, but not well-coordinated
- Schools need to push students to stay – needs to be a coordinated issue
- High school counselors need to be concerned with Vocational Education
- Builders (No spec. houses) Lot sizes too large
- Companies are not providing health care to employees
- State focus on agribusiness. Skill sets in this cluster are not understood.

APPENDIX A (CONTINUED...)

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Math/arithmetic aptitude
- Basic math
- Applications aptitude
- Brain drain
- Quality leadership is stretched to the max
- Leadership: project management
- Communications: written and verbal, foreign languages
- Multi-tasking
- Computer networking skills
- IT Training is not being done to meet demand
- Ability to operate more than one machine
- C&C Machine skills
- People skills: team players
- Flexibility: willing to work non-traditional schedules
- High schools do not understand career awareness and skill sets required for certain careers
- Literacy
- Dependability: workers quit after 3 days, don't pass drug screens (What incentives are there to keep them loyal to the company?)
- True literacy as opposed to functional literacy
 - Ability to communicate – orally & written
 - Spelling/grammar
- Leadership
 - Have not had the governmental leadership
- Educational capacity
 - Pre-college – get students focused on what they want to do
- Need to see the need for education
- Project management
- Need to understand the importance of education
- Young people may not understand importance of benefits as a part of income
- Lack of applied math skills in construction – SEVERE SHORTAGE
- Mentorship of first generation graduation of college
- Mentorship of schools, pastors and friends
- Financial resources for young people to get degrees
- SOLUTION SUGGESTION: Need a branch of Ivy Tech. Need to fit schedule of workers
- Demographics – goes back to age
- Disconnect in technology
 - Lack the infrastructure
 - Lack the people to use, develop it.

APPENDIX A (CONTINUED...)

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?

- Environmental and technical specialists for utilities
- IT
- Specific skills including: Six Sigma, IS9000, quality control
- Robotics/radio control container for distribution
- Warehousing
- More companies outsourcing Human Resources Services
- International and small business
- What are we doing to encourage small business?
- Quality control
- Life Sciences – Business Development Opportunities
- We don't monitor the emerging warehousing & transportation
- More services because of aging population
- Assisted living & long term care facilities (not well-paid, but competition will raise wages)
- Prison – new private owners
- Warehousing & logistics
- International business development

APPENDIX A (CONTINUED...)

Blackford County Facilitated Discussion Summary 10/4/05

1. Do you feel the data presented adequately reflect industries and occupations in your area?

- Yes
- Employment is down since 2001...not a surprise
- Blackford has held its own...no empty factories
- Tru-Form Steel & Wire
- Key Plastics
- White collar job cuts, more production
- Higher production/white collar ratio
- Brain drain
- Agriculture is low
- Per household income seemed high
- Percentages
- Households and workers seem to close
- Public assistance
- Surprising to see how many people travel away from the county
- Less than 14,000 people. Skews the data – numbers get dominated by major companies
- Border county – data doesn't consider the wages lost to other counties
- Questioned groups/clusters
- Surprised at difference in income levels at Health Care/Chemicals

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Tool & Die makers
- Nurses/Health care – baby boomers getting older
- 3M is OK, not limited
- Industrial Arts Programs at High School (Shop, Automotive Repair)
- Schools doing a good job
- 3M – Factory employees came from Blackford County, Engineers came from outside of county
- Need engineers
- Hourly wage is less here than elsewhere
- EMT Courses (trained EMT)
- Professional/White collar occupational shortage
- Heavily reliant on manufacturing
- Residents are leaving region for these occupations – Management/Technical
- Glass – blue collar
- Attitude/Team Players (hard to find)
- Machine operators – CNC

APPENDIX A (CONTINUED...)

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Industrial Maintenance (electrical, hydraulics)
- Robotics
- Location of Ivy Tech campus very advent.
- Electricians, plumbers
- Losing college graduates
- Accountants/consulting
- Welders/skilled trades (recruiting from outside county to fill positions)

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Good fundamental skills
- Dependability
- Common sense/business sense
- Literacy
- Practical skills/problem solving skills
- Trades – basic workplace skills
- Welding
- Future farm kids
- We are missing the vocations in high school
- Entrepreneurship Programs
- Leadership – Grassroots (Do not have people, younger people, willing to take on leadership positions)
- Basic computer skills
- Advanced computer skills (Middle aged)
- More classes in Hartford City – Continuing Education
- Communication skills, both written & verbal
- Every industry has own software
- Leadership is lacking in industry, professional and government.
- Basic math & reading skills in older workers
- No tech training programs to snatch up undecided grads
- Lack of attention – attitude not starting at home
- Hispanics will work, honest. (It has come to this)
- No work ethic
- Math (Tool & Die makers)
- Outward migration – local plant managers don't live here

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?

- Ethanol plant workers/skills
- Chemical engineers
- Safety

APPENDIX A (CONTINUED...)

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they? (CONTINUED...)

- No wheel tax
- Transportation is a possibility
- Grant county dislocated workers
- IT Systems
- Old hospital location, whatever happens
- Malpractice insurance system
- Incubator Program – Entrepreneur
- Revolving Loan Fund
- Tax Abatements
- Chemists
- Environmentalists
- Agribusiness
- Information technology (still not available, infrastructure)
- No concentration of resources in rural areas (All goes to cities, Indy, Ft. Wayne)
- Robotics (expensive training)
- Technology skills – manufacturing becoming more automated

APPENDIX A (CONTINUED...)

Rush County Facilitated Discussion Summary 10/6/05

1. Do you feel the data presented adequately reflect industries and occupations in your area?

- Yes generally correct
- Input from companies
- Missed hospital, local shops
- School system
- Shelby Electric – employment
- Growth in hospital
- Ivy Tech
- Advanced materials
- Wages seemed high
- Average household salary seemed high
- Ag business seemed low
- Manufacturing not surprising

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Engineers
- High tech – Machinists, Tool & Die, IT
- Degree for specialty positions
- Company cutback individuals
- Precision machining – tooling
- High tolerance work
- Work ethic – Even if you find the skilled labor
- College graduates
- Recruitment of physicians – can get them, just can't retain them (move to Greenfield, Greenwood – can't get them to live here)
- Nursing shortages – Radiology techs, pharmacy, LPNs, RNs – Specialty areas – one pool of nursing staff
- Psychologists – Hearing impaired
- Statewide network
- Purdue – Step Ahead; pre-engineering, welders
- Welders
- Certified skilled labor (high turnover)
- Ivy Tech – trouble producing skilled people
- Basic math skills; can't pass math tests
- Problem solving skills
- Recruiting for nurses from Fayette & Shelby county
- Nutritional/dietary (high turnover)
- Skilled trades (elec. or mech.)

APPENDIX A (CONTINUED...)

- 2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)**
- Electricians; skill shortages
 - Truck drivers
 - Blue collar – no high school education; lots of vacancy for jobs requiring high school diplomas
 - Low operating costs for companies; a well-kept secret, many people don't want too many people here
 - If we could get the corporations, we could get movers & commuters
 - Close to major highways and cities
- 3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?**
- Work ethic; attendance – punctuality
 - Computer skills classes – Filled
 - Quick Books
 - Office Suite
 - Publisher
 - Basics to Information Technology
 - Blue Prints – Calipers; Work Ethic (Judgment)
 - Workplace economics
 - Math
 - Basic resume skills
 - Social skills
 - Attitude toward education; still want good job
 - Shortage of supervisory talent
 - High school grads (GEDs) hard to find
 - Problem solving skills
 - Multi-tasking skills
 - Communication
 - Catch 22 – provide the training, but then leave the community – a lot of people place 0-value on education
 - Many people inherit their trade (farming); now family farm doesn't support family
 - Experience brain drain; look at different groups – they need different support
- 4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?**
- High tech Ag
 - Ethanol (Bio fuels)
 - Small town mentality – (People believe others make too much money)
 - Fiber optics (understanding of)
 - Repair skills
 - Fiber supplier

APPENDIX A (CONTINUED...)

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they? (CONTINUED...)

- Entrepreneurship skills (Linda Walker)
- More generalists – more function; cross-trained workers
- Utility operator; machines need programming
- Sophistication of hospital
- Housing stats
- Infrastructure Access (I70 – I74) Broadband community
- Schools teaming in bio-med, bio-tech, bio-fuel
- Ag with bio meds
- R & D
- Need to look outside the manufacturing box; room for growth in other areas

APPENDIX A (CONTINUED...)

Randolph County Facilitated Discussion Summary 10/11/05

1. Do you feel the data presented adequately reflect industries and occupations in your area?

- Yes; Glass industry is down
- Less manufacturing – more service
- Small business (throw-in to manufacturing)
- No info average on education
- The feeling is that county has lost jobs, which has caused an exportation of people in the county, schools & cities
- Average wage for county skewed by Union City.
- We hear about high numbers of federal assistance for housing, high numbers of free & reduced lunches in schools; need to look at single-family incomes
- Manufacturing industry & Agri-business base that needs to be diversified
- Health careers seem to be more dominate than reflected
- Health care – heavily reflected in employment shares graphs, but not shown in cluster detail
- Legend would be helpful for reference
- Government is a major player
- Income is less (heavy manufacturing)
- Average 24 hrs./week for the past year
- Union City Body Company reduction from \$17/hr. to \$9/hr. & reduction of benefits
- Foundry is going down
- Anchor has lost
- 59.5% below income
- Champion Homes
- Cox Manufacturing
- Data is reflective
- Dire situation is valid (job loss, population loss)
- Manufacturing based
- Income is less than presented
- Household income seemed too high

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Have older workforce with skills – hard-pressed to be employed; skilled workers are and will be in short supply
- Job opportunities are not here
- A lot of talent here – have to leave county to find work
- A lot of button-pushing jobs; ones leaving county have better skills
- High school grads and college grads leaving county; no jobs here

APPENDIX A (CONTINUED...)

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Drug problems; hard to find workers that are drug free – some companies not doing testing, couldn't find workers
- Technology skills shortage; those who do have these skills are leaving
- Health care occupations; very competitive
- Hospital/Nursing opportunities
- Prepared workforce
- Internet savvy
- Certain percentage that doesn't want to work
- No nursing shortage
- Welders, painters, metal finishing, machine repair; county has these skilled workers available
- There a large number of entry-level applicants. What we have found is that there is not a demand for the qualified labor to allow people to stay in the area
- Shortage of professional people & services; accountants, engineers
- Professional, management & technical skills
- Skilled trades, plumbing, electrical contractors; not adequate
- Maintenance & skilled labor
- Skill training with electricians – trouble shooting technician
- 400 people getting back into plant
- Made in Mexico, now made in China
- Electronics
- Frank Miller Lumber is the most high-tech employer in Union City
- Work ethic is poor!
- Available workers are here, but the jobs are not
- Stock of human capital is not of the same level as in the past
- Semi-skilled workers needed; tow motor, die setter. Should want to learn – can be trained
- Science teachers
- Special education teachers
- Bus Drivers
- Quality control positions
- Carpenters
- Entrepreneurs – new businesses; child care, pre-school (no license for under-18 mos.)
- Financing issue – no revolving loan fund
- 5 school systems
- Infrastructure problems; T-1, highways; available, but no money

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Skilled trades – opportunities shortages
- People glad to have a job

APPENDIX A (CONTINUED)

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- OMCO – trained at BSU – go to other locations
- Police officers – hire them, train them; they go off to other jobs
- Not looking at right aspect of what county is doing
- We need to see what others are doing – maybe follow suite
- Technology has improved; costing jobs
- Lack of leadership in community. Don't work together as a whole, no unified plan; lack of planning
- Need someone to pull all together
- Randolph county is 20 years behind Jay county; Jay county has pulled together as a county
- Jobs pay better outside of Randolph County; forces people to move to provide for their families
- Government leadership at all levels has become so partisan that what is good for the city, county and state is ignored
- Because of the population loss it is not feasible for people with these skills to undertake entrepreneurial opportunities
- Looking long-term we are concerned about the State's decision to not focus on industrial trades, i.e. carpentry, auto mechanics, agribusiness
- Readily available skilled labor pool
- Entrepreneurism/risk taking & leadership
- Math comprehension & problem solving; basic computer skills
- Reading for comprehension
- Collaboration & communication
- No support system for leadership & tolerance for differences
- Acceptance of innovation
- Technology skills (Lack broadband & therefore do not need skills, but will the skills if it becomes available)
- Lack professional skill sets needed, i.e. management, sales, professional skills
- Computer programmers
- Work ethic is a big concern
- Appropriate dress
- Quality control skills
- Attention to detail
- Use small calipers, micrometers
- Outreach from BSU and I.U. East
- Brain drain – nothing for them to come back to – they are prepared, but they leave

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?

- Agricultural-type businesses
- Cattle operations
- Senior center for education & personal well-being

APPENDIX A (CONTINUED...)

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they? (CONTINUED...)

- Demand for organic foods
- Ethanol plant
- Tourism
- Growth in automotive manufacturing
- Engineering with new products
- Information technology (Cell)
- Broadband
- Think of second-tier jobs (high-tech, etc.)
- Chamber of Commerce is too public sector loaded
- Too much government and non-profit job development
- Chamber of Commerce and Economic Development should be one in the same
- Technology occupations
- School administrative positions; 60% of school personnel are eligible or will be eligible to retire in the next 5 years
- Funding for website initiative – tell prospects about what we offer; Infrastructure
- Access to education – Muncie, Richmond; very difficult to ready workforce, no infrastructure to support distance
- State line can be a problem – cell phones

APPENDIX A (CONTINUED...)

Wayne County Facilitated Discussion Summary 10/13/05

1. Do you feel the data presented adequately reflect industries and occupations in your area?

- Not surprised with data
- Hard to argue with the numbers
- Felt wages would be higher
- Outdated data
- Job categories have changed considerably. Foundries are much smaller
- Where is the heavy manufacturing? Not here, not in Union County – we just don't see it. Also certainly declining, not increasing. Auto and glass manufacturing are gone
- Wages seem way too high, also the household income. Data is probably ½ off from where it should be
- Plastics, stamping and manufacturing is on the decline. We are diversified
- Demographics
- Casket industry not included (There are 4 casket mfg. companies)
- Hillenbrand
- Belden Wire Cable Company was not included in data (800 employees)
- Region is not that similar
- Population in Wayne County is aging
- Educational level is not reflected in the data
- Growing significance of cross commuting
- Agribusiness – 11,000 Sal (Hog)
- Ordinance – “Aquafer”

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- High demand for Health Care – any health occupation
- RNs
- Recruiting and providing incentives to workers – I.U. East producing skilled workers, people are moving to larger cities
- Capacity issues – 2-3 year waiting list for Ivy Tech admissions
- People with high wages in manufacturing. No company wants to pay for skill levels that are leaving the area
- We must diversify area
- Wayne county needs to attract people and companies with higher skills
- There are no jobs for the occupations
- Technical skills - We don't have the training or the people for automation – industry won't commit to training these folks
- Engineers, chemist – scientific fields
- Need to be training right now for the skills & occupations we're looking for
- No shortage of nurses

APPENDIX A (CONTINUED...)

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Palladium pays less than Muncie
- Low pay is a problem
- Demand for nurses, but supplied by local college
- Banks, lending offices go outside the company for hiring. It used to be different. They used to promote from within.
- Belden Wire moved headquarters to St. Louis.
- No shortage of skill sets, only shortage of professional workers
- Difficult to find production workers at a lower wage. (Cultural issues)
- Shortage of technology workers
- Truck drivers
- Skilled IT
- Skilled labor shortage
- Unskilled labor pool with Union reputation
- Soft skills
- Basic work ethic & aptitude
- Literacy rate
- WorkOne – anyone that wants to move forward can put their profile (Best Community Resource)
- Earlham College – “Brain Gain” opportunities
- Need internships within the communities.
- Entrepreneurship
- Machine operators – Machine Tool Council (Richmond H.S. does not prepare)
- Gateway Training Partnership – Jackie Vanderpool
- Technical Specialist – too many Elementary teachers
- Math, Science, Speech & Hearing therapists

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Basic industrial skills
- Computer literacy/computer skills
- Not enough money in the county to address the skill shortages issues
- Work ethic
- Communication skills, written & verbal
- Lifelong learning programs, skills certificates
- Technical skills
- Reading, writing
- Commitment
- Drug screening
- Out of 100s apps for mechanics, only 5 applicants qualified (this is happening at numerous organizations)
- Brain drain – aging population/need to take a look at this

APPENDIX A (CONTINUED...)

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Soft skills, unrealistic expectations
- What can we do to bring jobs here?
- Technology gone
- Quality of life
- Financial differences between Bloomington. Hard to recruit
- Manufacturing/machining
- 90% of the students coming to Ivy Tech require remedial math.
- Shortage of IT skill sets
- Lack of entrepreneurial spirit – Leadership
- Lack of follow-through-commitment or new initiatives
- Do not have a lack of communication skills in general
- Employee turnover
- Lack of good management style
- Creative thinking

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?

- Lab animals – Certified animal handlers
- Clinical Research
- Taconic Farms, Cambridge City (100+ employees, higher paying, white collar jobs)
- Dairy processing plant – 200+ workers, agreement signed
- Midwest Industrial Park
- Call Centers (pay up to \$16/hr.)
- Innatech – injection molding (high tech) 65 employees
- Good processing – sanitation engineers, chemists, EPA, packaging
- IT Area – schools are strong
- Medical area – Regional Hub
- Attract other industries like Zimmer
- Reid is not a research hospital
- Pet food industry (agri business)
- Warehousing (I-70) Location crossroads
- Logistics industry
- Earlham College is growing (5 K-12 school corporations and 6 colleges)
- Osborne Int. (brush mfg.)
- Kelsey Food & Dairy (200 jobs)
- CAFO operation
- Biomedical
- Incubator environment
- Incubator also at innovation center
- Angel Network
- Venture Capital

APPENDIX A (CONTINUED...)

Jay County Facilitated Discussion Summary 10/14/05

1. Do you feel the data presented adequately reflect industries and occupations in your area?

- No surprise in info presented
- Bio med is a large industry cluster in the State
- Reflects county ok
- Auto racing/hobby sports – potential
- North of town – moto-cross, dirt tracks, paint ball
- Produce drag racing parts
- There is more tourism than what the 2001 data show
- Antique engine show
- Indiana Cultural Center – Great Lakes
- Data is dated
- Jobs in glass industry have decreased (Indiana Glass, etc.)
- Cheap products
- Agri-business is greater than presented (# of jobs are down)
- Roy & Dr. Pat presented 186K people working in the region. Employment step shows different data
- Household income seemed low. The cost of living is much lower here; need to factor this in – we don't need to make as much here.
- Aging population
- Perfect

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Medical – Nurses, RNs & LPNs, Pharmacists, Medical records coders, Transcriptionists, Radiology techs, Nuclear medical, Medical technicians, Dieticians
- Professional Health Care
- Recognize shortage, problem with pharmacy/dealing with statewide pricing
- Training within
- Not a problem with entry workers
- Technology production lacking in schools
- Computerized tools/operating shortage
- Old-style laths gone in schools
- Follow curriculum guidelines from State
- 48% go to college from Jay County high school
- IT skills/working with software
- Using companies in Muncie for IT work
- 3 people in IT department at Jay County School Corp.
- Assisted living centers, can retain

APPENDIX A (CONTINUED...)

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Hospital has a problem with specialized positions, hard time retaining skilled positions
- Technology and IT shortages
- Pre-employment training in technology (plenty of production workers)
- Skilled maintenance & Electronics techs
- Electricians
- Skilled and semi-skilled machinists
- Plumbers/construction trades
- Human services
- Administrative personnel
- Skills shortages – Maintenance managers/Building Maintenance/Equipment Maintenance/Supervisors – Blue prints – schematics
- Entrepreneurs
- Forging, machining
- Brain drain
- Self confidence to pursue basic skills (reading, writing, math)
- Basic computer skills
- Communications
- CDL

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Clerical skills
- Grammar/math
- Phone etiquette/work ethics
- Work ethic program, answering a need – maybe do background check
- Statewide program affiliated with State Chamber – certification
- Day care issues
- Can learn skills, basic skills cannot be learned
- Work ethic concerns (timeliness – 1 company allows 39 absences per year for employees!); Culture
- Leadership programs within organizations
- IT Training
- Some of the job loss is due to automation
- Basic computer skills
- Self-Esteem
- Problem solving
- Leadership (to take the initiative to digest information and move forward)
- Need to develop more team concept at all levels (Promote teamwork)
- Lack of ownership/responsibility (Economics of workplace)
- Entitlement attitude
- Multi-tasking

APPENDIX A (CONTINUED...)

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?

- Retention and application of training
- Radiology/Labs (expanding as technology changes; current employees can be trained)
- Hotel/Restaurants
- A lot of jobs without benefits, can't afford benefits, underinsured
- Not enough to keep kids here; not enough entertainment
- ½ grad class is in Indy
- Low wage
- Don't see any high-tech needs
- Basic skills are all that is needed
- Dollar General
- Samsung
- Hobby Industry (X-Plex)/Entertainment
- Fish Farming
- Meat packaging (Pork)
- Duck farming
- Recycling business
- Polymers
- Broadband technology (have & have nots)
- Starting to do turnings in manufacturing – Need programmers for machines
- Hospitality business starting to materialize
- Ethanol
- Tourism
- Innovative people
- Fortco (Plastics Industry)
- Createc
- Jay Tech
- Secondary Sector (Hotel, Food & Retail)
- Freedom Park (amenities)
- Art Place

APPENDIX A (CONTINUED...)

Union County Facilitated Discussion Summary 10/18/05

- 1. Do you feel the data presented adequately reflect industries and occupations in your area?**
 - Farming –under-represented
 - Decline of jobs – does that take into account the declining population?
 - Union County could be a bit more stable
 - Always concerned for those who do not go to service of college – are there opportunities?
 - Inventory skill sets
 - Does “Government” include education?
 - Did not include government average annual pay; could influence people moving in.
 - Did not include educational services
 - Square D – losing jobs to China – only 35 full-time employees; hurting the community
 - Fayette and Union county are nearly identical
 - Average household income seemed high (34K)
 - People going to Ohio for education & health care

- 2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?**
 - Special education teachers
 - Math teachers
 - Substitute teachers and substitute drivers
 - Degreed in machining (computer training) – Pendleton – Manufactured equipment
 - Co-op youth
 - Machinists
 - NSK Managers, Production managers, Middle managers
 - Bearings (Auto related)
 - Nurses – through (Health Clinic) Fayette Memorial Hospital
 - Basics – Somewhat in the existing workforce
 - Skilled workers – trades; electricians, plumbers, etc.

- 3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?**
 - Survey of employers across the region
 1. Customer service skills
 2. Technology
 - Better people skills
 1. Listening
 2. Relating well to others

APPENDIX A (CONTINUED...)

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Stress & pressure
- Attendance
- NSK – work schedule
- Work ethic – there's plentiful jobs; showing up to work – no dedication, loyalty
- People can go outside the county & make more money
- Jobs are not quality, high-paying jobs to sustain family
- Training dollars is an issue with smaller companies
- Communication – oral & written
- Conflict resolution
- Office training
- High school diploma & GED
- Skills are not being utilized; machine skills

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?

- Gwayne Reed – Paint company (Chemists)
- Spanish speaking population
- Emotional problems with kids – schools
- Oxford growing towards us – need something to pull us
- Entrepreneurs
- Tech trained people
- Infrastructure (technology is a problem); newspaper has to go to Franklin County
- Higher tech farming; chemical applicators
- Over 600 employees at Square D

APPENDIX A (CONTINUED...)

Fayette County Facilitated Discussion Summary 10/20/05

1. Do you feel the data presented adequately reflect industries and occupations in your area?

- The final three – Agribusiness
- Visteon : 2001-3,200 employees; 2005-1,300 employees; 2007-900 employees
- Dated manufacturing
- Less employment in manufacturing, more in RD & engineering. Visteon has less manufacturing employees today, that would indicate salaries have declined.
- Overall picture is mostly accurate
- Wondering about env. Tech?
- Is there more current data available?
- 2001 data – Job loss rate numbers would be greater
- Data should show a decline in Heavy Industry (Visteon declining in # of employees)
- Are manufacturing high wage jobs helping growth?
- Why is farming so low?
- Emerging recreation/tourism should be reflected in the data
 - Whitewater
 - Museums
- Non-farming ag-business (flowers, agri-tourism)
- Economic impact of baby boomers (attract/keep them)
- Low prices of housing attract them?
- Other areas work to get them to come
- Surprised we are further along than surrounding counties
- Find it odd that Heavy Industry & Elec. are combined
- Brain drain
- Average household income skewed by Visteon
- Take out manufacturing jobs & data will fall considerably
- Higher end jobs are falling – lost 100 jobs out of manufacturing

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Nursing (LPNs & RNs) CNAs
- Health careers – specialists and technicians
- Machine operators – CNC
- Carpenters declining – (Everyone goes to college, don't want to work with hands. Same with farming)
- Managing (Creative folks) entrepreneurial within and external
- Drywallers, bricklayers, physical labor
- Development & Design & Research

APPENDIX A (CONTINUED...)

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- I70 & HWY1 – Laboratory Animals – Supplier vs. Incubator
- Highly qualified education in sciences, Math & Special Education Technology
- Auto mechanics & diesel mechanics
 - Jim Maley will e-mail information
- Engineering degree in fuel systems – currently outside county to recruit
- Specialized legal services acquired outside of county
- Recruit 2-year degree to train in technical fields. Lack of availability in market
- I.U. East (Education) has no trouble finding professors if the money is there to pay them.
- A lot of positions require Masters Degree
- Experienced tool makers
- Engineers
- Business is changing drastically
- Health care growth – aging more rapidly here.
- Need Ivy Tech support for h.c. professionals
- Population loss
- Technical personnel
- IT
- Health care services

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Service industry – **CUSTOMER SERVICE SKILLS**
- Creative thinking
- Research
- Degreed engineers in specialized areas
- Need technicians for assembly/plastics
- Flexible worker embraces change
- Workers who understand whole scope of business
- Ability to learn in a new environment
- Life-Long learning
- (Higher-Ed groups are a strength in our area)
- The ability to work in a **fast-paced** environment and multi-task.
- Practical skills, trouble-shooting.
- College-educated engineers
- Leadership & business skills
- We lack “street smarts”. Need to be led by hand
- Lack ability to fill out job application
- Literacy rates are low
- Leadership skills – elected officials (some are good)
- Communication skills, oral & written
- Math – problem solving

APPENDIX A (CONTINUED...)

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Attendance/punctuality/substance abuse
- Dependability
- Reading, writing, spelling
- Work Ethic, follow-through
- Infrastructure – issues with roadways, major transportation arteries

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?

- Computers & retail careers – Comcast (internet – programming, etc.) Career certifications
- Communications
- Chemical skill sets (Value added agriculture)
- Health careers (Pharmacy)
- Three years from now manufacturing will change
- Food processing
- Agribusiness
- Transportation/Logistics
- I.U. East plans to ask for new degree program in Biology – Biomed
- Masters in Education
- More technical tool & die designers (don't know of new industries)
- Without population growth, not sure anything will be needed
- Fayette County is a bedroom community
- It is difficult to talk people in to moving into Fayette County.
- Tourism
- **Strengths** – Logical location for logistics (railroads, airport
- New med center
- New dialysis center
- Turn community into Mayo clinic community
- Community here wants Arts, culture, Telecommunications
- Professional incubator services, entrepreneurial leaders, medical transcriptionists
- Territorialism – We are too protective. We need to start working as a group of counties.
- Awareness – education is here and available
- People don't know how to cope now that jobs aren't abundant
- I.U. East, Ivy Tech, Vocational

APPENDIX A (CONTINUED...)

Delaware County Facilitated Discussion Summary 10/24/05

1. Do you feel the data presented adequately reflect industries and occupations in your area?

- Surprised to see that Health Services wasn't growing
- The population is declining, however the population is aging. It is government health care that is growing, not private.
- Declining population contributes to job loss – most move to Indy – pay here is less, but cost of living is comparable
- Skill level and workforce levels need to be emphasized (Quality of human capital)
- Cross-commuting
- Infrastructure limited
- No projection for industry growth
- Target Industry Study is lacking
- Entertainment/night-life lacking here
- Do not see how manufacturing is growing!
- Surprised to see that the Health Care cluster is not bigger
- Overall – Yes!
- Delaware County Data: Why the Earth industries was greater than education sector with BSU, Ivy Tech and local school districts?
- Manufacturing represented well
- Surprised with the Financial Services data. We have two banks with their corporate headquarters located in Delaware County.
- First time hearing about strengths & concentrations in many of the areas.
- Logistics – Trucking companies does not mean adv. Logistics
- Not looking at advanced manufacturing, logistics, biomedical, etc.
- The term – “21st Century” logistics is a misnomer. We have “truckers”.
- We are not advanced
- Need trend info. Are we ahead or behind the wave?
- Can we move into advanced or 21st Century with the workforce we have?
- Do we have the right kind of manufacturing, or is it all old line manufacturing?
- New markets and methodologies – not measuring against growth industries – measuring against status quo.
- Definitions of clusters not obvious
- Do not agree with 4 clusters identified by the state
- Title of clusters are murky, not understood
- Tool and die is not advanced manufacturing
- We are buggy whip makers
- No medical device manufacturing represented in data
- Is our specialization fading or growing?
- Studying status quo – not looking at what is growing nationally
- Data did not mention government payroll

APPENDIX A (CONTINUED...)

1. Do you feel the data presented adequately reflect industries and occupations in your area? (CONTINUED...)

- Biomedical data is too high
- Yes, pretty hard to argue with data
- Impression that manufacturing is declining, but data shows different.
- Would like to see data as to shifts in types of manufacturing
- Shift in income/benefits are down to stay competitive
- Does this data take into account New Venture Gear – created major relocation issues with skilled workforce & related families?
- Hard to absorb that manufacturing in Delaware County is less of a % than outlying counties.
- Aging population
- Skill levels
- Labor Market information – Jobs & Commuting Into county
- Mean income & the people who live & work in community
- Analysis of those who are leaving
- How many in the higher skill-higher wage set area – actually live in Delaware County?
- Those who are commuting in & out, what are the occupations
- SDI – steel mill in Dekalb Co. – Non – Union steel mill.
- Surprised by the average wage for Delaware County. What is the Regional Average Wage?
- UI Rate – Regional and Local
- GM Chassis Line – Randolph County – 327 jobs – 67,000/year

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Health care workers – average nurse at BMH is mid-40s.
- Not a lot of students choosing nursing. It is only getting worse. Nurses are moving out of the area
- Shortage of professionals and executives
- Engineers, brain drain – skilled trades
- Sales & Marketing professionals
- Financial analysis
- Lack of funding for education – Governor does not value education. De-funding of schools
- IT people can get entry level, but hard to get experienced (5-10 yrs)
- Lack of job opportunity for IT skilled workers
- White collar jobs – loss of top jobs/corporate center – loss of any input into corporate decisions. Lack of community involvement – People who make the decisions live outside of the community.
- Sever shortage of jobs available for skilled individuals
- Logistics – seems to be a lot of want-adds for trucking help
- Med-tech – 4-year hard to find
- Can utilize telecommuters, but then lose economic benefits

APPENDIX A (CONTINUED...)

2. In your opinion, what occupational shortages (i.e. nurses, carpenters, machine operators, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Selective shortages in Health Care
- Can't have shortages of skilled workforce, just that jobs are shrinking
- Occupations that take advantage of our strengths (Natural Resources, Agri)
- We are becoming so efficient that there is not a need for as many jobs.
- Management skills
- A lot of retail-minimum wage jobs go unfilled. In retail segment, needing folks to pass the drug screen
- CDLs
- CNAs
- Occupational skill shortage could be due to spouse losing jobs – dual income families. Issue of “trailing spouses”.
- IT with language skills
- Managers and executives who have been downsized left the community. They did not stay to start new businesses.
- Shortage on entrepreneurs.
- People who are willing to learn new skills & new technology. They are stuck in their “old ways” of manufacturing.
- Need to know where demand is in the future to answer these questions.
- These jobs are going away – fewer jobs are needed to look to future – where will the demand be?
- Corporate layoffs – people left with their golden parachutes. Their leadership skills left with them. They can be attracted back – backlog of people without skills.
- Entertainment/Recreation – nothing here for young people
- Nurses
- Entrepreneurial shortages
- Planning commission might be helpful
- No town meeting to really learn about stuff
- Concern on media representation – what really goes on?
- Abundance of machine operators – not sure they meet the new industry needs. They need training.
- Magna and hospital bringing in out-of-town contractors to do work on expansion projects
- Shortage in skilled trades (aging population) – tool & tie
- Qualified general contractors. Have to be procured from outside the region.
- Skilled Manufacturing
- Certified workers

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages?

- Computer literacy
- Electronics training for manufacturing

APPENDIX A (CONTINUED...)

3. In your opinion, what skill shortages (i.e. leadership, communication, technology, math, etc.) are constricting the economic growth of your community and/or company? How severe are these shortages? (CONTINUED...)

- Math, science – not enough places to develop those skills – people learn them but can't apply them
- Leadership/Managers – many of these people have left the community
- Large number of unskilled manufacturing workers are being paid until 2007 not to work! These people may lack skills and may not be motivated to get new skills.
- Information technology – use of computers for 40 – 50 year olds that have never turned on a computer. Fear
- Multiple language skills (Japanese & Spanish)
- Work Ethic – (Maintaining 90% of Retention at Red Gold)
- Attendance/Retention
- Functional transferable skills (Leadership, communication, soft skills)
- Indiana is an “isolated” state
- Unbalanced workforce – A lot of manufacturing (skilled individuals), less college grads.
- Education – reduce dropout rate!
- Spend more time on “smart” kids, less on average
- Programs get funded on your “Best & Brightest” – college bound students
- College is never going to be for everyone. How do we guide those not on the college track to continue their education?
- We have job shortages, not skill shortages.
- Cardinal Health System appears to have a continual need for employees and is always advertising. Why? Lack of skill at hospital?
- Doctors, nurses?
- Master Electricians and Master Educators – having to move to Indy for work
- People with skills available are not appreciated
- Lack of opportunities locally – have to relocate
- Leadership – major void. The same people are on the same committees in the community. Need to get a variety of others involved. Not just the same people all of the time.
- Decision-makers move so slowly
- Locally, we don't have a say on many things
- Mathematics/logical thinking
- Communication/English
- High school diplomas
- Med-tech – Huge shortage in the next 10 years. Awareness of program. Baby boomers are retiring. Make 1 ½ times more in Indy.
- Lack of communication on awareness of opportunities within the skilled trades.
- Basic math and application to the job
- Lack of opportunity for educated spouses within the region
- Broadband technology
- Lack of identity/Regionalism
- Certification
- What % of workforce is organized? Poor labor relations identity

APPENDIX A (CONTINUED...)

4. Are you aware of any emerging occupations within your own company or new industries moving into the area? If so, what are they?

- Ethanol Plant
- Ag Park
- Distribution Centers, I-69
- Probable power plant in Desoto – logical location for one.
- Coal gasification – price of gas is up – potential for power generation
- Magna? – Auto Related
- Development – Grant writer – Fundraiser
- Advanced logistics positions
- Look at industries that are strong and growing – determine what we can do to support and attract
- Incubator companies (Needs cultivated)
- Broadband opportunities (top wireless campus; media opportunities)
- Medical Education opportunities at BSU
- Easier to build on emerging occupations based on strengths, rather than focusing on the shortages!
- Health care is a growing industry – increased need
- We are growing in the 45+ - 65 yrs. Age group, but how do we meet those needs?
- Technology creates new jobs everywhere
- Become a retirement community with excellent health care
- Ontario Corp./Software Systems
- We need to come up with money however we can to get employers here.
- Wal-Mart
- Tech park initiative
- Call centers
- Not using By-Pass and I-69 for distribution and warehousing facilities
- Bio plants

Appendix B – Health Diagnosing and Treating Practitioners (CONTINUED...)

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name: EGR 6
 Occupation Name: Health Diagnosing and Treating Practitioners
 Occupation SOC: 29-1000

A. Lower projection:									
Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		71	137.3	203.6	269.9	336.2	402.5	468.8	
New demand during year		71	71	71	71	71	71	71	71
New production during year		197	197	197	197	197	197	197	197
Net migration during year		-192.3	-192.3	-192.3	-192.3	-192.3	-192.3	-192.3	-192.3
Net change during year		66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3
Carryover to next year (+/-)	71	137.3	203.6	269.9	336.2	402.5	468.8	535.1	

B. Middle projection:									
Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		74	143.3	212.6	281.9	351.2	420.5	489.8	
New demand during year		74	74	74	74	74	74	74	74
New production during year		197	197	197	197	197	197	197	197
Net migration during year		-192.3	-192.3	-192.3	-192.3	-192.3	-192.3	-192.3	-192.3
Net change during year		69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3
Carryover to next year (+/-)	74	143.3	212.6	281.9	351.2	420.5	489.8	559.1	

C. Upper projection:									
Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		76	147.3	218.6	289.9	361.2	432.5	503.8	
New demand during year		76	76	76	76	76	76	76	76
New production during year		197	197	197	197	197	197	197	197
Net migration during year		-192.3	-192.3	-192.3	-192.3	-192.3	-192.3	-192.3	-192.3
Net change during year		71.3	71.3	71.3	71.3	71.3	71.3	71.3	71.3
Carryover to next year (+/-)	76	147.3	218.6	289.9	361.2	432.5	503.8	575.1	

Notes:

- (1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.
- (2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:
- A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.
 - B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.
 - C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Appendix C – Health Technologists and Technicians (CONTINUED...)

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name: EGR 6

Occupation Name: Health Technologists and Technicians

Occupation SOC: 29-2000

A. Lower projection:

Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		33	34.5	36	37.5	39	40.5	42	43.5
New demand during year		33	33	33	33	33	33	33	33
New production during year		182	182	182	182	182	182	182	182
Net migration during year		-150.5	-150.5	-150.5	-150.5	-150.5	-150.5	-150.5	-150.5
Net change during year		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Carryover to next year (+/-)	33	34.5	36	37.5	39	40.5	42	43.5	

B. Middle projection:

Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		35	38.5	42	45.5	49	52.5	56	59.5
New demand during year		35	35	35	35	35	35	35	35
New production during year		182	182	182	182	182	182	182	182
Net migration during year		-150.5	-150.5	-150.5	-150.5	-150.5	-150.5	-150.5	-150.5
Net change during year		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Carryover to next year (+/-)	35	38.5	42	45.5	49	52.5	56	59.5	

C. Upper projection:

Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		38	44.5	51	57.5	64	70.5	77	83.5
New demand during year		38	38	38	38	38	38	38	38
New production during year		182	182	182	182	182	182	182	182
Net migration during year		-150.5	-150.5	-150.5	-150.5	-150.5	-150.5	-150.5	-150.5
Net change during year		6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Carryover to next year (+/-)	38	44.5	51	57.5	64	70.5	77	83.5	

Notes:

- (1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.
- (2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:
- A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.
 - B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.
 - C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Appendix D – Life Scientists (CONTINUED...)

Worksheet for Calculating Shortages or Surpluses of One Occupation										
EGR Name:	EGR 6									
Occupation Name:	Life Scientists									
Occupation SOC:	19-1000									
A. Lower projection:										
Total, all industries in EGR										
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Carryover from last year (+/-)		0	-2.8	-5.6	-8.4	-11.2	-14	-16.8	-19.6	-22.4
New demand during year		0	0	0	0	0	0	0	0	0
New production during year		76	76	76	76	76	76	76	76	76
Net migration during year		-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2
Net change during year		-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8
Carryover to next year (+/-)	0	-2.8	-5.6	-8.4	-11.2	-14	-16.8	-19.6	-22.4	-25.2
B. Middle projection:										
Total, all industries in EGR										
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Carryover from last year (+/-)		0	-2.8	-5.6	-8.4	-11.2	-14	-16.8	-19.6	-22.4
New demand during year		0	0	0	0	0	0	0	0	0
New production during year		76	76	76	76	76	76	76	76	76
Net migration during year		-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2
Net change during year		-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8
Carryover to next year (+/-)	0	-2.8	-5.6	-8.4	-11.2	-14	-16.8	-19.6	-22.4	-25.2
C. Upper projection:										
Total, all industries in EGR										
Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Carryover from last year (+/-)		0	-2.8	-5.6	-8.4	-11.2	-14	-16.8	-19.6	-22.4
New demand during year		0	0	0	0	0	0	0	0	0
New production during year		76	76	76	76	76	76	76	76	76
Net migration during year		-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2	-73.2
Net change during year		-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8	-2.8
Carryover to next year (+/-)	0	-2.8	-5.6	-8.4	-11.2	-14	-16.8	-19.6	-22.4	-25.2
Notes:										
(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.										
(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:										
A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.										
B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.										
C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.										

Appendix E – Business Operations Specialists (CONTINUED...)

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name: EGR 6

Occupation Name: Business Operations Specialists

Occupation SOC: 13-1000

A. Lower projection:									
Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		-6	-6.5	-7	-7.5	-8	-8.5	-9	-9
New demand during year		-6	-6	-6	-6	-6	-6	-6	-6
New production during year		70	70	70	70	70	70	70	70
Net migration during year		-75.5	-75.5	-75.5	-75.5	-75.5	-75.5	-75.5	-75.5
Net change during year		-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Carryover to next year (+/-)	-6	-6.5	-7	-7.5	-8	-8.5	-9	-9.5	

B. Middle projection:									
Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		0	5.5	11	16.5	22	27.5	33	33
New demand during year		0	0	0	0	0	0	0	0
New production during year		70	70	70	70	70	70	70	70
Net migration during year		-75.5	-75.5	-75.5	-75.5	-75.5	-75.5	-75.5	-75.5
Net change during year		5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Carryover to next year (+/-)	0	5.5	11	16.5	22	27.5	33	38.5	

C. Upper projection:									
Total, all industries in EGR									
Year	2005	2006	2007	2008	2009	2010	2011	2012	
Carryover from last year (+/-)		6	17.5	29	40.5	52	63.5	75	75
New demand during year		6	6	6	6	6	6	6	6
New production during year		70	70	70	70	70	70	70	70
Net migration during year		-75.5	-75.5	-75.5	-75.5	-75.5	-75.5	-75.5	-75.5
Net change during year		11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Carryover to next year (+/-)	6	17.5	29	40.5	52	63.5	75	86.5	

Notes:

- (1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.
- (2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:
- A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.
 - B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.
 - C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Appendix F – Metal Workers and Plastic Workers (CONTINUED...)

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name: EGR 6

Occupation Name: Metal Workers and Plastic Workers

Occupation SOC: 51-4000

A. Lower projection:

Total, all industries in EGR								
Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		-203	-348.5	-297	-245.5	-194	-142.5	-91
New demand during year		-203	-6	-6	-6	-6	-6	-6
New production during year		3	3	3	3	3	3	3
Net migration during year		-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5
Net change during year		-145.5	51.5	51.5	51.5	51.5	51.5	51.5
Carryover to next year (+/-)		-203	-348.5	-297	-245.5	-194	-142.5	-91

B. Middle projection:

Total, all industries in EGR								
Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		-156	-254.5	-353	-451.5	-550	-648.5	-747
New demand during year		-156	-156	-156	-156	-156	-156	-156
New production during year		3	3	3	3	3	3	3
Net migration during year		-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5
Net change during year		-98.5	-98.5	-98.5	-98.5	-98.5	-98.5	-98.5
Carryover to next year (+/-)		-156	-254.5	-353	-451.5	-550	-648.5	-747

C. Upper projection:

Total, all industries in EGR								
Year	2005	2006	2007	2008	2009	2010	2011	2012
Carryover from last year (+/-)		-109	-160.5	-212	-263.5	-315	-366.5	-418
New demand during year		-109	-109	-109	-109	-109	-109	-109
New production during year		3	3	3	3	3	3	3
Net migration during year		-60.5	-60.5	-60.5	-60.5	-60.5	-60.5	-60.5
Net change during year		-51.5	-51.5	-51.5	-51.5	-51.5	-51.5	-51.5
Carryover to next year (+/-)		-109	-160.5	-212	-263.5	-315	-366.5	-418

Notes:

(1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.

(2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:

- A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.
- B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.
- C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.

Appendix G – Truck Driver, Heavy Tractor-Trailer (CONTINUED...)

Worksheet for Calculating Shortages or Surpluses of One Occupation

EGR Name: EGR 6

Occupation Name: Truck Drivers, Heavy Tractor-Trailer

Occupation SOC: 53-3032

A. Lower projection:

Total, all industries in EGR											
	2005	2006	2007	2008	2009	2010	2011	2012			
Year											
Carryover from last year (+/-)			-58	-100	-142	-184	-226	-268	-310	-352	
New demand during year			-58	-58	-58	-58	-58	-58	-58	-58	
New production during year			0	0	0	0	0	0	0	0	
Net migration during year			-16	-16	-16	-16	-16	-16	-16	-16	
Net change during year			-42	-42	-42	-42	-42	-42	-42	-42	
Carryover to next year (+/-)		-58	-100	-142	-184	-226	-268	-310	-352		

B. Middle projection:

Total, all industries in EGR											
	2005	2006	2007	2008	2009	2010	2011	2012			
Year											
Carryover from last year (+/-)			-7	2	11	20	29	38	47	56	
New demand during year			-7	-7	-7	-7	-7	-7	-7	-7	
New production during year			0	0	0	0	0	0	0	0	
Net migration during year			-16	-16	-16	-16	-16	-16	-16	-16	
Net change during year			9	9	9	9	9	9	9	9	
Carryover to next year (+/-)		-7	2	11	20	29	38	47	56		

C. Upper projection:

Total, all industries in EGR											
	2005	2006	2007	2008	2009	2010	2011	2012			
Year											
Carryover from last year (+/-)			45	106	167	228	289	350	411	472	
New demand during year			45	45	45	45	45	45	45	45	
New production during year			0	0	0	0	0	0	0	0	
Net migration during year			-16	-16	-16	-16	-16	-16	-16	-16	
Net change during year			61	61	61	61	61	61	61	61	
Carryover to next year (+/-)		45	106	167	228	289	350	411	472		

Notes:

- (1) A positive (+) carryover indicates a "shortage" of workers in this occupation. A negative (-) carryover indicates the opposite.
- (2) This worksheet allows for "ranges" of estimates and projections in recognition of the fact that these values cannot be known with certainty. The meanings of the words "Lower," "Middle," and "Upper" are as follows:
- A. "Lower" means that your EGR thinks the probability is no more than 25% that the true value lies below it.
 - B. "Middle" means that your EGR thinks the probability is about equal that the true value lies either below it or above it.
 - C. "Upper" means that your EGR thinks the probability is no more than 25% that the true value lies above it.