

One East Kentucky

Aviation Assessment and Recruiting Strategy





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Data Sources and Analysis

All proprietary and statistical data was provided by EMSI, Inc., under contract with the University of Southern Mississippi, Kentucky Career Center Labor Market Information and the U.S Bureau of Labor Statistics. Additional information was collected by personal interviews by the authors or provided by reliable local sources. All the statistics are the most current, collected in 2015. Where practical, maps have been used to simplify data interpretation and trends. Airport data was secured using personal interviews with Airport Authority members, FAA documents and examination of the *Airport Layout Plans* provided by the Airport Engineers.

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Introduction

In March of 2016, the *One East Kentucky* regional economic development organization contacted Common Sense Economic Development, LLC and Tucson Atlantic Consulting (the Consultants) in regard to analyzing the region's potential for recruiting aerospace. Our Consulting team has over 70 years of combined economic development-related experience. Much of that experience relates directly to aerospace recruiting, educating and training of aerospace workers, managing airports, assisting existing aerospace companies, and, recruiting aerospace parts suppliers, engineering firms, original equipment manufacturers (OEM) and maintenance repair and overhaul (MRO) operations.

Two multi-day visits were conducted by the Consultants to assess strengths, weaknesses, opportunities and threats before a formal contract was signed on July 6, 2016. The contract authorized the Consultants to complete the analysis, provide recommendations and certify the region as AEROready™. Additional thoughts on growing the region's economy are included in the Appendix. Other insights will be shared in one-on-one conversations with *One East Kentucky* leadership.

Methodology and resources

The Consultants used a combination of methods, resources and information sources to compile data, assess competitiveness, and develop strategies and recommendations. Initial research consisted of one-on-one interviews with regional and utility economic development officials, airport board members and administrators of three airports. Meetings were also held in person or by phone with regional education and aerospace executives who can play a critical role in the expansion of the aerospace economy. Research also included a telephone interview with a member of the Kentucky Cabinet for Economic Development.

Statistical research involved the use of proprietary data provided by Economic Modeling Specialists International (EMSI) and data supplied by the University of Southern Mississippi. EMSI is one of the world's leading sources of specialized information related to economic development issues such as workforce, demographics, industry trends and regional analysis. Other sources of information included the websites of various regional aerospace and education-related organizations, as well as publicized Kentucky Cabinet for Economic Development information

Aerospace recruiting/AEROready™ designation preview

Over 1200 data points, factors which are important to companies seeking new facility locations, have been identified by the International Economic Development Council (IEDC). A full listing, organized by 25 topic-specific spreadsheets can be found at www.iedc.org. These data points include a large percentage of the information companies might need in a site location search. The importance of any single data point or even any single spreadsheet category depends upon the nature of the location search, in particular, the factors which are most important to the success (often the profitability)

of the project. Non-direct profit-related items such as image, aesthetics or quality of life factors may also be relevant in a site location decision.

Today, most states and/or communities utilize some type of site certification criteria to minimize risk. This ensures that environmental, wetland, soil borings, archaeological and endangered species assessments have been completed by appropriate engineering personnel or others with expertise in those fields. Site certification assessments generally also consider the availability of needed utilities. While those essential reviews and certifications are extremely important in most site location decisions, they often do not address equally important issues related to marketability of sites and communities, or their ability to satisfy distinct needs of specific industries, such as aerospace/air related companies.

In this particular case, *One East Kentucky*, asked the Consultants to analyze local, state and regional factors most critical to the location of aerospace-related companies. As a first step, we sought to review the regions' strengths and weaknesses related to factors which often drive aerospace location projects. We then assessed out-of-region assets that offer resources beneficial to the aerospace sector, within and around the *One East Kentucky* region. Fourteen (14) of the key factors which often drive aerospace projects (beyond site/building factors) are shown in the bullet points below:

- availability of appropriate workforce skills and training, such as A&P (airframe and/or power plant) certified maintenance skills;
- proximity to higher education opportunities, especially Science, Technology, Engineering and Mathematics-related (STEM);
- proximity to universities with aerospace-related research programs, including advanced materials/composites;
- proximity to technical schools and training facilities;
- potential for aerospace marketing/recruiting assistance from state and utility economic development agencies;
- quality of public schools;
- availability of airport property with runway access for MRO (maintenance, repair and overhaul) facilities;
- compatible land use/surroundings;
- images of sites and buildings;
- proximity to transportation assets;
- proximity to other aerospace manufacturing industries and industry clusters;
- proximity to aviation-related military bases;
- availability and cost of executive housing, medical care and retail;
- other quality of life assets needed to recruit high pay executives and skilled labor into the area.

Of course, there are other key factors essential for successful aerospace recruiting. The local economic development professional staff must have great problem-solving

skills; the ability, desire and budget needed to travel to appropriate aerospace-related events; and the support of pro-business, aggressive, elected and volunteer leaders. The Consulting team's analysis revealed that the *One East Kentucky* region contains a substantial percentage of the criteria important to a broad spectrum of aerospace companies. The *One East Kentucky* region has the desire, ability and resources necessary to coordinate that recruitment. Strong recruiting partners include American Electric Power (AEP) and THINK KENTUCKY. Furthermore, the State of Kentucky's existing aerospace infrastructure will be a huge factor in the success of recruitment efforts.

Common Sense Economic Development, LLC and Tucson Atlantic Consulting are proud to issue **AERoready™ Region Certification** to confirm aerospace potential of the *One East Kentucky* region. We also look forward to providing continuing guidance to economic development leadership efforts to make aerospace an important component of the regional economy.

One East Kentucky Aviation Assessment and Recruiting Strategy

Scope of work

This aerospace assessment is designed to offer insight to community leadership and guidance whether to target and recruit

For the sake of clarity, AVIATION refers to aircraft that operate within the atmosphere. On the other hand, AEROSPACE is the all-encompassing term that refers to both aviation activities and space flight. We'll primarily use the term aerospace in this assessment and marketing plan unless referring to specific aviation skills or industries.

aerospace industries and their considerable economic benefits. It is also designed to provide a critical overview of a timeframe, rough cost estimate and actions for recruiting aerospace businesses. We'll first examine airports, assets and liabilities, skills and their disbursement in East Kentucky, the wider- Kentucky, West Virginia and Ohio Region as well as the area immediately surrounding the nine-county *One East Kentucky* region. Secondly, we'll identify the largest the aerospace industries in the area. Third, we will examine the competitiveness of the nine-county *One East Kentucky* region. Fourth, we will offer an aerospace strategy and fifth, if the resources are present, issue an AEROready™ Certificate that will assist in the recruiting process.

Economic advantages of aerospace

The aerospace aviation business is unlike any other. Its labor is generally higher paid than most manufacturing businesses. For example, the average weekly salary for production workers in Pike County is \$945, the highest in the nine-county *One East Kentucky* region compared to lowest, Johnson County at \$489. The average production wage in the larger 23-county East Kentucky workforce region is \$616. Contrast that to the \$1,624 average pay for aerospace skilled jobs in Kentucky. Since their wages are higher, aviation industries have a higher economic impact in the communities where they are present. As one might expect, the larger the salary, the greater the contribution to the local economy. Aerospace jobs are generally high-skill, high-wage and high-demand jobs that require technical training. Therefore, they make a prime target for communities and their industrial recruiting efforts.

Economic impact of aerospace

Today, Kentucky hosts some of the nation's finest aerospace industries including: parts manufacturing, aircraft assembly, maintenance, overhaul & repair (MRO) and research & development (R&D). Primary employers in the state include: Belcan Corporation, Messier-Bugatti, Skillcraft, Lockheed Martin, GE Aviation, Safran, Meggitt, Raytheon and Phoenix Products. There can be little doubt that the aerospace industry is a critical component of Kentucky's economy. In 2014, the region including Northern Kentucky was designated as the lead aerospace region for a U.S. Department of Commerce program designed to promote and improve manufacturing communities. The *Southwestern Ohio Aerospace Region Manufacturing Community* (SOAR) includes the Interstate 75-corridor from

Dayton to Cincinnati, as well as Carroll, Gallatin, Boone, Kenton, Campbell, Bracken, Pendleton, Grant and Owen counties in Northern Kentucky. The growth of the Kentucky aerospace industry has been truly remarkable. The Kentucky Cabinet for Economic Development reported “Half of Kentucky’s \$27.5 billion exports are transportation equipment, divided between \$7.8 billion in aerospace parts and products, and \$5.9 billion in motor vehicles. Aerospace products and services alone are now Kentucky’s leading export, comprising one-fourth of the state’s total exports. Between 2013 and 2014, exports from Kentucky of components for aircraft parts grew 37.5 percent. It was among the fastest-growing export sectors in the state. Furthermore, the value of aerospace exports has doubled from 2011 to 2014.” Kentucky’s aerospace industries do business with the worldwide aerospace and supply Boeing, Airbus, Lockheed and many more. Furthermore, it is growing and pays its employees substantially more than traditional manufacturing industries. Thus, it’s a very desirable target for the greater *One East Kentucky’s* economy.

Primary regional airports

Although every aerospace industry does not require an airport location, they are essential for fixed wing and for rotor wing operations that require a runway, navigation aids, fuel, or other airport services. MRO (maintenance, repair and overhaul) operations generally operate more efficiently at airports. Therefore, we can consider airports as a



necessary component for a community’s AEROready™ Certification. Without a first-class airport, one lessens the probability of a successful marketing and recruitment effort. Fortunately, the *One East Kentucky* region supports three airports that are likely to satisfy the needs of an aerospace industry. They include Wendell H. Ford, Big Sandy Regional and Pike County Regional Airports. All three are adequately served by utilities and support available industrial land for industrial expansion. The resources and services for the three airports are contrasted below.

Wendell H. Ford Airport, KCPF

- Location near: 10 miles NW of Hazard Kentucky
- Runways: 14/32, 5,500X100 feet, 06/24, 3600X 60 feet
- Commercial Service: No
- Weight bearing capacity: 30,000 lbs. Approach: ILS Localizer w/4 light PAPI
- Operations /day: 28
- Military aircraft: 08 percent
- Based Aircraft: 32
- Fuel Available: 100LL- Jet A
- Maintenance: Minor airframe and power plant
- Fire Protection: Volunteer



- Utilities: water, sewer and natural gas
- Industrial land adjacent to a taxiway: >10 acres
- Special considerations: Plans underway for a full ILS and lengthened runway
- Coal Fields Industrial Park nearby contains a large vacant industrial building

Big Sandy Regional Airport, KSJS

- Location near: 9- miles NE of Prestonsburg KY
- Runway: 03/21, 5,000 X 100 feet
- Commercial Service: No
- Weight bearing capacity: 30,000 lbs.
- Approach: RNAV GPS W/ 2 light PAPI. ILS DME
- Operations /day: 21
- Military aircraft: 03 percent
- Based Aircraft: 21
- Fuel Available: 100LL-Jet A
- Maintenance: None (airframe & power plant)
- Fire Protection: City of Inez and Van Lear
- Utilities: water, sewer and natural gas
- Industrial land adjacent to a taxiway: >10 acres
- Special considerations: A Federal Bureau of Prisons High Security Penitentiary is located adjacent to the Eastern Kentucky industrial park. Two Industrial buildings are located nearby. A previously occupied facility, constructed in 2012 containing 54,700 SF, and a 44,000 SF speculative facility constructed in 2005. Both are located in the industrial park near the airport. Total additional industrial land available at the park is approximately 180 acres



Pike County Regional Airport (Hatcher Field) KPBX

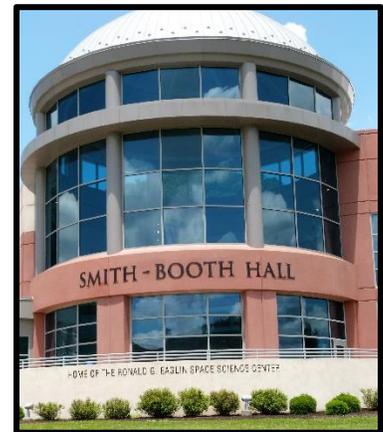
- Location near: 6-miles NW of Pikeville KY
- Runway: 09/27, 5,356 X 100 feet, 02/20, 3,500 X 75 feet
- Commercial Service: No
- Weight bearing capacity: 30,000 lbs.
- Approach: ILS DME, w/4 light PAPI
- Operations /day: 25
- Military aircraft: 02 percent
- Based Aircraft: 30
- Fuel Available: 100LL, Jet A

- Maintenance: Major airframe and power plant
- Fire Protection: City of Pikeville
- Utilities: Water, sewer and natural gas
- Industrial land adjacent to a taxiway: >10acres
- Special considerations: Runway 02/20 presently closed and available for development as industry site(s) with access to the active runway 09/27



One East Kentucky aerospace strengths/assets

- Three regional airports capable of aerospace industry expansions that include: Wendell Ford, Big Sandy Regional and Pike County Regional Airports;
- Four industrial parks with infrastructure to support aerospace industry requirements: East Kentucky Business Park, Marion’s Branch Industrial Park, Gateway Industrial Park and Coal Fields Industrial Park;
- The Morehead Space Science Center, a first- class research center located in Morehead Kentucky;
- American Electric Power (AEP) is a strong and supportive economic development ally;
- Somerset Community College, located in Somerset Kentucky, offers a comprehensive FAA approved aviation maintenance program;
- Big Sandy, Southeast Kentucky and Hazard Community Colleges offer dependable, and responsive training programs to support industry needs;
- The eKentucky Advanced Manufacturing Institute (eKAMI), although new, has been remarkably successful retraining coal miners for advanced manufacturing jobs. eKAMI is destined to play an increasing role in transitioning skilled individuals to new employment (Appendix F);
- Four-year college education is available to residents at The University of Pikeville, Morehead State University, Alice Lloyd College and the Eastern Kentucky University Campus in Hazard. The University of Kentucky is within 2-hours of most of the region;
- An expanding and diverse aerospace industry sector in the State of Kentucky that serves all sectors of the aerospace industry. Aerospace as an industry is currently the largest exporter in the state and generates \$7.8B or one fourth of the state’s total exports;



Morehead Space Science Center

- Pro-business local leadership throughout the region and available financial resources, sites and buildings required to recruit and accommodate the aerospace industry;
- State-wide aerospace business executives who are familiar with the advantages of locating and expanding in Kentucky that can be used as references for potential aerospace industry prospects;
- Huntington Tri-State Airport in nearby West Virginia offers commercial air service, has available industrial land, and is a willing and potential partner in aerospace recruitment;
- The nearby Interstate 75-corridor from Dayton to Cincinnati, including Carroll, Gallatin, Boone, Kenton, Campbell, Bracken, Pendleton, Grant and Owen counties in Northern Kentucky is home to numerous and rapidly expanding aerospace industries;
- The Kentucky Cabinet for Economic Development, through its Department for Business Development has designated the aerospace industry as a high priority target. It is an experienced and knowledgeable ally that should be engaged in any aerospace.

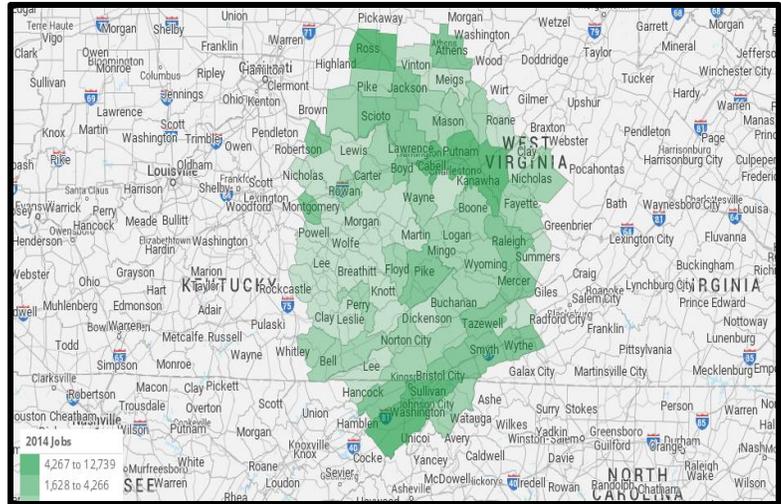
One East Kentucky aerospace weaknesses/liabilities

- Little local history or direct experience with aerospace industries;
- Limited aviation direct aerospace skill experience or training network entrenched within the community. Since there is not an obvious experienced trained labor force readily available to work, a significant portion of an initial skilled aerospace workforce would likely be “imported or intercepted” from surrounding counties. This is especially noteworthy with A&P (airframe & power plant) FAA certified mechanics;
- There are currently no specialized A&P high school or college training courses available in the region to support and sustain an aviation facility involved with MRO (maintenance, overhaul or repair) of aircraft. Since the closest FAA certified aviation, A&P (airframe & power plant) program is located in Somerset Community College, an arrangement whereby dual enrollment A&P training could be offered to high school students may be required to support an expanding aerospace industry;
- Lack of an available expandable aircraft hangar facility or speculative building with taxi-way access at one of the three regional airports (in the 10,000- 50,000 square feet range) to attract a new MRO (maintenance, repair and overhaul) or other aircraft service businesses;
- Absence of an aerospace marketing plan to successfully recruit new aerospace industry that identifies regional partners committed to participate in the process.

Aerospace employment and skills

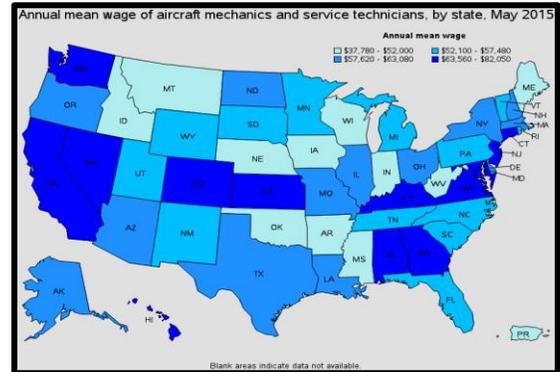
The aviation industry is critically dependent on skilled labor. The Federal Aviation Administration (FAA) certifies and requires a permanent record for each part that is installed on an aircraft. Similarly, an A&P (airframe & power plant) mechanic must certify that the part has been properly installed on each aircraft. Since safety is vital when flying, both parts and labor tend to be more exacting and expensive. Specifications for both parts and labor are meticulous. This tends to concentrate specialized labor availability around industry clusters. It also often requires proximity to an FAA certified maintenance school. It's fortunate that the nearest FAA certified school is located in Somerset Community College convenient to the *One East Kentucky* region. It's also possible in Kentucky to initiate A&P (airframe & power plant) training through the local high schools using dual-enrollment training in cooperation through Big Sandy, Southeast Kentucky and Hazard Community Colleges. The eKentucky Advanced Manufacturing Institute (EKAMI) has been successful placing former mine workers in new manufacturing jobs. For example, the **CNC Machinist Now** program is a 16-week accelerated course offering industry credentials and placement into industry jobs upon completion. To date all of the graduates have found permanent employment. In addition, the **Haas Technical Education Network** enables educators to acquire the latest CNC tools and equipment. The goal of this program is to transition workers into new manufacturing employment. These two new initiatives are designed to reduce unemployment and offer new skills and employment to laid off workers (Appendix F).

Assuming that *One East Kentucky* is successful in their recruitment efforts this training will be an essential component to sustain aviation skills. Seventy-four skill sets (See Appendix A) are recognized as essential to aerospace industry.



The Map above illustrates the density and location of 74-aerospace related skills, within 100 miles of Martin County KY, by county. Note the heaviest skill concentrations centered around the north, south and east of the *One East Kentucky* Region

Kentucky is currently the top paying state for aircraft mechanics and service technicians. These skills are required to support MRO (maintenance, repair and overhaul) operations. These workers are heavily concentrated in the counties around Louisville, Kentucky and Cincinnati, Ohio. These skilled workers diagnose, adjust, repair, or overhaul aircraft engines and assemblies, such as hydraulic and pneumatic systems and includes helicopter and aircraft engine specialists. A high percentage of these workers hold FAA certification and are airframe and power mechanics. The top five states and their number of jobs, wages are listed in the table below.



Top five paying states for states Aircraft Mechanics and Service Technicians (49-3011)

State	Employment	Employment per thousand jobs	Location quotient	Hourly mean wage	Annual mean wage
<u>Kentucky</u>	1,780	0.97	1.08	\$39.45	\$82,050
<u>New Jersey</u>	1,720	0.44	0.49	\$35.76	\$74,380
<u>Washington</u>	4,550	1.53	1.70	\$33.75	\$70,200
<u>Maryland</u>	2,350	0.91	1.01	\$32.84	\$68,310
<u>Colorado</u>	1,760	0.72	0.80	\$31.39	\$65,280

Aerospace employment, skills and growth in the *One East Kentucky* region

The seventy-four job skills required to support the aerospace industry are currently present in the *One East Kentucky* region. These workers possess transferable skills needed by aviation industries. Note that Pike, Floyd and Perry have the most skilled workers. However, only Floyd County showed an increase in these skills from 2014-2015. Many of these skills are utilized by the mining industry which has declined in recent years. It is likely that some of these workers have left the area to find other employment. Still, for a basically rural region, these skills are well-represented in the area. Note that the location quotient for all these counties is less than one. This indicates that the skills are less prevalent in the *One East Kentucky* region than the United States at-large. If the mining industry continues its decline, an alternative industry will be necessary to retain these skilled residents. The total of 7,706 individuals with transferable skills currently present

in the region indicate that the aerospace industry could potentially offer an excellent skill match.

The workforce region is centered on Martin County, KY and extends for 100 miles. The map to the right shows the geographic location (by county) of 13- industries that employ 1,521 workers. As shown in the **summary, aerospace industry characteristics, Martin County, KY +100-mile radius** chart below, these industries employ skilled, well paid individuals. The **Regional Trends Graph** (Page 14) illustrates the growth of aerospace employment within the region. It's astonishing that aerospace jobs in this area have increased 49-percent in the area from 2010-2015, far surpassing national growth rates. It is also notable that the average earning per aerospace job is \$84,442.

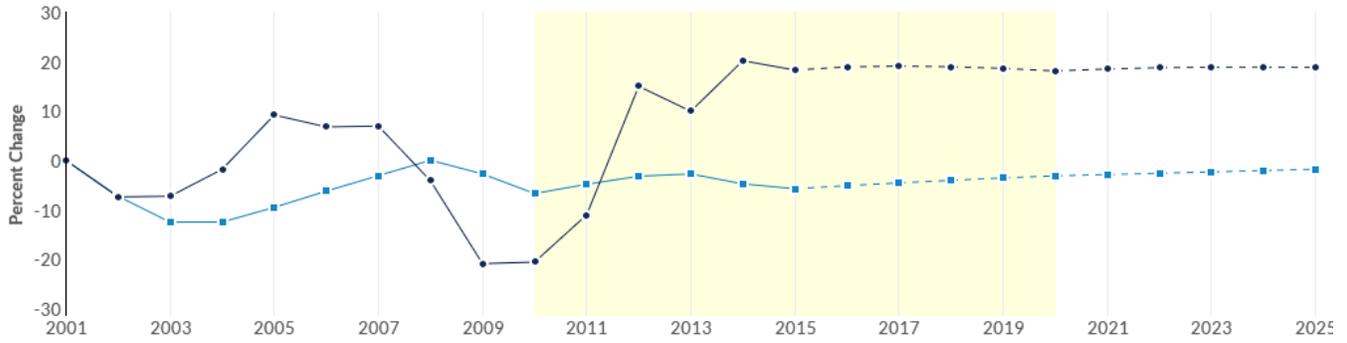


Distribution of regional aerospace industries

The chart below indicates the 74-skill classifications located within the *One East Kentucky* region necessary to support the aerospace industry. However, the skill base and knowledge is present in the workforce to retrain to FAA standards.

SOC	County Name	2014 - 2015 Change	2014 - 2015 % Change	Openings	Avg. Hourly Earnings	2015 Location Quotient	2014 Jobs	2015 Jobs
21195	Pike County, KY	-80	-3%	61	\$21.24	0.75	2,670	2,590
21193	Perry County, KY	-43	-3%	28	\$20.28	0.63	1,281	1,238
21115	Johnson County, KY	-32	-5%	13	\$20.21	0.62	623	591
21159	Martin County, KY	-27	-7%	<10	\$22.13	0.85	391	364
21153	Magoffin County, KY	-18	-6%	<10	\$18.19	0.84	304	286
21127	Lawrence County, KY	-14	-4%	<10	\$20.62	0.68	396	382
21133	Letcher County, KY	-12	-2%	14	\$19.18	0.76	600	588
21071	Floyd County, KY	3	0%	60	\$20.72	0.76	1,410	1,413
21119	Knott County, KY	-16	-6%	<10	\$20.62	0.56	270	254

Regional Trends Graph



Region	2010 Jobs	2015 Jobs	2020 Jobs	Change	2010-2015 Growth %	2015-2020 Growth %
● Martin County Kentucky Surrounding Region	1,015	1,512	1,510	495	49.0%	-0.1%
● Nation	509,364	514,725	528,918	19,554	1.1%	2.8%

Regional aerospace industries

The chart to the right represents the largest aerospace business within the 100-mile radius of Martin County, KY.

The 1,767 jobs primarily represent aviation parts and equipment manufacturers in Kentucky and bordering states.

The largest aerospace businesses representing 1,500 + jobs within the 100-mile region

General Dynamics Armament/tech	336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	708
Aeronautical Accessories	336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	600
Bell Helicopter	336411	Aircraft Manufacturing	250
BAE Aerospace	336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	130
Superior Metal Products Inc.	336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing	79
Cisco Helicopters	336411	Aircraft Manufacturing	5

The chart below is a summary of the largest aerospace business characteristics, Martin County, KY +100-mile radius.

13	1,767	0.45	\$84,442
Payrolled Business Locations	Jobs	Concentration	Earnings Per Job
Payrolled business locations increased by 5 over the last 5 years.	Jobs increased by 497 over the last 5 years. Projected to decrease by 2 over the next 5 years.	Regional job concentration is 0.45 times the national job concentration.	Regional earnings per job are \$33,202 below the national earnings per job of \$117,644.

One East Kentucky's competitive advantage

Target regions maintain aerospace clusters that offer the best recruitment opportunities given their high payroll, business location loss and high cost of labor compared to 100-mile radius centered around Martin County, KY. High labor costs and business out-migration signals that businesses are dissatisfied with the region and are leaving to find better locations. The high cost of labor may indicate a business more likely to relocate to the *One East Kentucky* region, where labor and other business costs are lower.



The companies shown in the competitive analysis are the largest aviation manufacturers within the regions. Many companies are located in multiple areas of the United States depending on military, logistics, suppliers or labor considerations. Often, companies with several locations tend to be excellent prospects. The 10-national micro-aerospace clusters ranked by the most likely to match the resources of the *One East Kentucky* region are listed below. Within each cluster identified is a list of primary industries that are potential recruiting targets. Although the Los Angeles-Long Beach-Anaheim California area is ranked as the # 1 recruiting target. It is significant to note that five states bordering Kentucky; Illinois & Missouri #5, Virginia & West Virginia #7 and Ohio #8, all support strong aerospace metropolitan aerospace clusters and are fair game for recruiting prospects. This desirable, but very unusual, situation likely offers an additional geographic advantage to *One East Kentucky*.

1. Los Angeles-Long Beach-Anaheim, CA

408	\$124,431
Payrolled Business Locations (2015)	Avg. Earnings Per Job (2016)
This region lost 17 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.	These region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
Boeing Co	Large (250+)
Aerojet Rocketdyne	Large (250+)
Robinson Helicopter Co	Large (250+)
Rockwell Collins Inc.	Large (250+)
Rockwell Collins Inc.	Large (250+)
Zodiac Aerospace	Large (250+)

Boeing Co	Large (250+)
Ducommun Aero Structures	Large (250+)
Designed Metal Connections	Large (250+)
Avibank Mfg. Inc.	Large (250+)

2. Dallas-Fort Worth-Arlington, TX

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Payrolled Business Locations (2015)

This region lost 17 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.

\$135,239

Avg. Earnings Per Job (2016)

This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
Lockheed Martin	Large (250+)
Raytheon Network Centric Sys.	Large (250+)
Northrop Grumman Aerospace	Large (250+)
Airbus Helicopters	Large (250+)
Pratt & Whitney	Large (250+)
Turbomeca USA	Medium (50-249)
Accurus Aerospace Corp	Medium (50-249)
Hm Dunn Aero Systems Inc.	Medium (50-249)
UTC Aerospace Systems	Medium (50-249)
Boeing Co	Medium (50-249)

3. Phoenix-Mesa-Scottsdale, AZ

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Payrolled Business Locations (2015)

This region lost 13 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.

\$114,354

Avg. Earnings Per Job (2016)

This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
Boeing Fire Protection-mesa	Large (250+)
Honeywell Aerospace	Large (250+)
UTC Aerospace Systems	Large (250+)
Nammo Talley Inc.	Medium (50-249)
Triumph Engines-Tempe	Medium (50-249)
Northstar Aerospace Inc.	Medium (50-249)
Marsh Aviation Co	Medium (50-249)

4. New York-Newark-Jersey City, NY-NJ-PA

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Payrolled Business Locations (2015)

This region lost 9 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.

\$101,412

Avg. Earnings Per Job (2016)

This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
Alcoa Howmet	Large (250+)
Ellanef Mfg. Corp	Large (250+)
CPI Aero structures Inc.	Large (250+)
Dassault Falcon Jet Corp	Medium (50-249)
Cox & Co Inc.	Medium (50-249)

Whippany Actuation Systems LLC.	Medium (50-249)
L-3 Space & Navigation	Medium (50-249)
Ge Aviation	Medium (50-249)
Aar Corp	Medium (50-249)
Dyna-empire Inc.	Medium (50-249)

5. St. Louis, MO-IL

34	\$142,351
Payrolled Business Locations (2015)	Avg. Earnings Per Job (2016)
This region lost 8 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.	This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
Boeing Co	Large (250+)
Heizer Aerospace	Medium (50-249)
Patriot Machine Inc.	Medium (50-249)
Kemco Aerospace Mfg.	Medium (50-249)
Hm Dunn Aero Systems	Medium (50-249)
Valent Aero structures	Medium (50-249)
DRS Sustainment Systems Inc.	Medium (50-249)
Aim Tech Group	Small (0-49)
Valent Aero structures	Small (0-49)
Tech Manufacturing Co	Small (0-49)

6. Bridgeport-Stamford-Norwalk, CT

21	\$147,853
Payrolled Business Locations (2015)	Avg. Earnings Per Job (2016)
This region lost 7 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.	This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
Sikorsky Aircraft Corp	Large (250+)
UTC Aerospace Systems	Large (250+)
B/E Aerospace	Medium (50-249)
Rotair Industries Inc.	Small (0-49)
Mcmellon Bros Inc.	Small (0-49)
Glyne Manufacturing Co	Small (0-49)
T P Engineering Inc.	Small (0-49)
United Technologies Corp	Small (0-49)
United Hydroforming Inc.	Small (0-49)

7. Washington-Arlington-Alexandria, DC-VA-MD-WV

34

Payrolled Business Locations (2015)

This region lost 5 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.

\$143,885

Avg. Earnings Per Job (2016)

This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
Lockheed Martin Corp	Large (250+)
Rockwell Collins Simulation	Large (250+)
Aerojet-general Corp	Large (250+)
Boeing Co	Medium (50-249)
Triumph Thermal Systems	Medium (50-249)
International Launch Svc	Medium (50-249)
Aurora Flight Sciences Corp	Medium (50-249)
Rockwell Collins Inc.	Medium (50-249)
Ge Aviation/Dowty Propellers	Medium (50-249)
Gulf Stream Aerospace	Small (0-49)

8. Columbus, OH

6

Payrolled Business Locations (2015)

This region lost 4 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.

\$99,701

Avg. Earnings Per Job (2016)

This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
PCC Airfoils	Medium (50-249)
Contour Forming Inc.	Small (0-49)
Mod Space	Small (0-49)
Rice Paddy Motorcycles	Small (0-49)
Williams Trailer Sales Inc.	Small (0-49)
All N All	Small (0-49)
Inair Instruments LLC	Small (0-49)

9. New Haven-Milford, CT

22

Payrolled Business Locations (2015)

This region lost 3 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.

\$104,010

Avg. Earnings Per Job (2016)

This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
UTC Aerospace Systems	Large (250+)
Jonal Laboratories Inc.	Medium (50-249)
Alcoa Howmet	Medium (50-249)
Flight Support Inc.	Medium (50-249)
Richard Manufacturing Co	Small (0-49)
Stevens Manufacturing Co Inc.	Small (0-49)
Numet Machining Techniques Inc.	Small (0-49)
Durol Co	Small (0-49)
Hunter's Pool Ctr.	Small (0-49)

10. Oklahoma City, OK

19

Payrolled Business Locations (2015)

This region lost 3 payrolled business locations in the industry from 2010-2015. High payrolled business location loss signals that businesses are willing to relocate.

\$134,772

Avg. Earnings Per Job (2016)

This region's industry earnings are above your state's industry earnings of \$85,667. Your state's cheaper average labor cost may make it easier to attract businesses.

Top Info-group Businesses

Business	Business Size
Tinker Air Force Base	Large (250+)
Boeing Co	Large (250+)
Pratt & Whitney Military Eng.	Small (0-49)
Rockwell Collins Inc.	Small (0-49)
Radial Engines Ltd	Small (0-49)
Zivko Aeronautics Inc.	Small (0-49)
Dusters & Sprayers Supply Inc.	Small (0-49)
Global Radial Aircraft Engines	Small (0-49)
Arrowprop Co Inc.	Small (0-49)
Ge Aviation	Small (0-49)

Marketing strategies for aerospace recruitment

It is estimated that aerospace marketing will require a dedicated minimum annual budget of \$30,000 for expenses and two-three years to successfully recruit an aerospace industry to the *One East Kentucky* region. The 9-East Kentucky counties are surrounded by aerospace clusters in Ohio, Virginia, West Virginia, Missouri and Illinois. The competitive advantage research also indicates that these 5- states are among the 10-nationwide aviation clusters deemed the best matches for recruitment. The most probable location for an aviation industry is at one of the three regional airports within the *One East Kentucky* region. However, many parts suppliers, research and development firms and helicopter MRO (maintenance, repair and overhaul) operations do not require an airport location. An expandable, speculative 10,000-20,000 square foot hangar at the airport would be very helpful in the recruiting process. Such a facility would offer immediate space for a company who bids and wins a U.S. Department of Defense contract or for a small business service supplier searching for a quick start-up location. "Spec buildings" are often funded by community banks, power companies, airport authorities, cities, or

counties or a combination of development-oriented entities. Some may be public or private partnerships.

It is important to begin the process and show success. Since none of the three airports currently supports an aircraft paint service, avionics, composite or depot level engine repair and service center, one of these businesses would be a desirable new business start-up. Potential supporters of the marketing effort are, *One East Kentucky*, The Kentucky Cabinet for Economic Development, through its Department for Business Development, Regional Airports, City and County governments, American Electric Power (AEP), utility providers and workforce & training partners. The nearby FAA certified A&P (airframe & power plant) school, Somerset Community College, located in Somerset Kentucky, should embrace recruiting support for a new aerospace industry as potential career options for their graduates. Although not necessary to begin aviation recruiting, an A&P (airframe & power plant) dual enrollment program at one of the high schools would be a logical first step toward maintaining an aviation workforce within the region once one is recruited. It is also reassuring for a prospective MRO (maintenance, repair and overhaul) industry to know that A&P (airframe & power plant) training will be available to sustain operations. The feasibility of such training should be discussed before a marketing campaign is begun. The following marketing outline serves as a guide to aerospace recruiting. It should be designed to reflect *One East Kentucky's* financial and personnel commitments to recruit aerospace industries. Initial steps include:

1. **Receive endorsement and a funding commitment** for a three-year marketing plan from local and regional leadership;
2. **Advise The Kentucky Cabinet through its Department for Business Development and workforce training partners** of *One East Kentucky's* intention to market & recruit aviation businesses and request assistance;
3. **Invite The Kentucky Cabinet's Department for Business Development, Somerset Community College, aerospace consultants, American Electric Power Co., economic development officials and other recruiting partners to spend a day in the region** learning about your aerospace assets and meeting with key partners. Entertain them like you would a prospect. Provide them with an aerial view of the regional airports, industrial buildings and primary cities, preferably from an aircraft. Ask them to help you generate prospects;
4. **Establish a strong committed regional aerospace/aviation alliance** within the 9-county *One East Kentucky* region. Also consider expanding the marketing effort to include the West Virginia Huntington Tri-State Airport Authority, and the Morehead Space Science Center to market & recruit aviation businesses. Also consider adjacent counties and cities as potential marketing allies. A large multi-regional partnership would be an effective marketing organization that would leverage the wider area's strengths;
5. **Interview and develop a personal network of aerospace industry managers and workers** in the area. *This is a critical first step before marketing outside the greater region;*

6. **Meet with the USAF contracting office in Wright Patterson AFB** and determine what new defense contracts are pending when existing contracts will be re-bid or renewed;
7. **Create a formal marketing/recruitment strategy** that will tie together the elements in this assessment into a sequenced, coordinated, comprehensive and funded plan- of-work for the region;
8. **Create a trifold brochure and web site** that highlights the workforce training, the *One East Kentucky* organization, local workforce training facilities, Somerset Community College A&P (airframe and power plant) school, The Morehead Space Science Center, transportation access, regional aerospace industries and future development and infrastructure plans;
9. **Include aerospace-related information** on regional airports, workforce partners, city and county websites;
10. **Compose a list of Airbus' and Boeing's worldwide suppliers** and make contact with as many as possible at marketing events; especially those in neighboring states.
11. **Attend the following trade shows and marketing events:**

Domestic:

- Heli Expo- Focused on the helicopter industry both military and commercial. (February, various nation-wide locations).
- NBAA- The National Business Aviation Association Show- specializes in commercial aviation. (October, various nation-wide locations).
- MRO- This trade show concentrates on the Maintenance, Repair & Overhaul (MRO) of Aircraft. (April, various nation-wide locations).
- Quad A- Primarily US Army military aircraft. (April, Nashville TN).

International:

- Paris Air Show-Civilian and military aircraft is also the world's largest airshow. Held in the odd years (i.e., June 2017, 2019, etc.) Le Bourget Airport, near Paris France.
- Farnborough Air Show, held at Farnborough Airfield near London. This event is held on the even years alternating with the Paris Air Show. (June, Farnborough Airport, near London, England).
- Singapore Air Show, held on the even years, four months prior to the Farnborough Air Show. (February, Singapore).



The consulting team of Common Sense Economic Development, LLC and Tucson/Atlantic Consulting has surveyed and examined the *One East Kentucky* region, and its potential to target, recruit and support aerospace-related business and industry. Fourteen essential qualities in aerospace site location searches were evaluated, and many secondary aviation support criteria were evaluated to determine the potential for aerospace corporations to operate successfully in the nine-county region.

These include, but are not limited to, the following:

1. Airport(s) with at least 10 acres of available land for economic development, supporting navigation aids for corporate aircraft and a minimum 5,000-foot runway;
2. Availability of local training of technical skills often needed by aerospace companies;
3. An FAA certified A&P (airframe and power plant) training facility located within the State;
4. Available industrial building(s) or hangar(s) suitable for aviation development;
5. An available skilled workforce suitable for aviation employment;
6. Adequate infrastructure to support the aviation industry;
7. Aviation support service business and industry;
8. A community pro-business environment;
9. Proximity to University- based aerospace programs and research;
10. Quality of Life assets in the region, which are essential to attracting executive talent.

It is our opinion that the area possesses the resources needed to attract and sustain aerospace-related companies, including those that require airport support services and infrastructure, as well as those that simply need high-quality sites or buildings.

The regional public and private leadership have shown a strong commitment to grow their market area and we are proud to endorse their aerospace recruiting efforts by certifying the ***One East Kentucky* region as an AEROREADY™ Region**, signifying its ability to successfully support the critical needs of the aerospace industry. This certification authorizes the ***One East Kentucky and its aerospace partners*** to utilize the AEROREADY™ Region logo in its marketing efforts and to publicize its AEROREADY™ Region status as needed to recruit aerospace related business and industry.

Robert Ingram
Common Sense Economic Development, LLC

Tucson Roberts
Tucson/Atlantic Consulting



APPENDIX A

Primary aerospace dependent occupations

Code	Description
11-1021	General and Operations Managers
11-3021	Computer and Information Systems Managers
11-3051	Industrial Production Managers
11-9041	Architectural and Engineering Managers
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products
13-1081	Logisticians
13-1199	Business Operations Specialists, All Other
15-1121	Computer Systems Analysts
15-1131	Computer Programmers
15-1132	Software Developers, Applications
15-1133	Software Developers, Systems Software
15-1142	Network and Computer Systems Administrators
17-2011	Aerospace Engineers
17-2061	Computer Hardware Engineers
17-2071	Electrical Engineers
17-2072	Electronics Engineers, Except Computer
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors
17-2112	Industrial Engineers
17-2131	Materials Engineers
17-2141	Mechanical Engineers
17-2199	Engineers, All Other
17-3013	Mechanical Drafters
17-3021	Aerospace Engineering and Operations Technicians
17-3023	Electrical and Electronics Engineering Technicians
17-3026	Industrial Engineering Technicians
17-3027	Mechanical Engineering Technicians
17-3029	Engineering Technicians, Except Drafters, All Other

Code	Description
43-5061	Production, Planning, and Expediting Clerks
43-5071	Shipping, Receiving, and Traffic Clerks
47-2111	Electricians
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers
49-2091	Avionics Technicians
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment
49-3011	Aircraft Mechanics and Service Technicians
49-9041	Industrial Machinery Mechanics
49-9071	Maintenance and Repair Workers, General
49-9099	Installation, Maintenance, and Repair Workers, All Other
51-1011	First-Line Supervisors of Production and Operating Workers
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers
51-2022	Electrical and Electronic Equipment Assemblers
51-2023	Electromechanical Equipment Assemblers
51-2031	Engine and Other Machine Assemblers
51-2041	Structural Metal Fabricators and Fitters
51-2091	Fiberglass Laminators and Fabricators
51-2092	Team Assemblers
51-2099	Assemblers and Fabricators, All Other
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic
51-4041	Machinists
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4111	Tool and Die Makers

Code	Description
51-4121	Welders, Cutters, Solderers, and Braziers
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic
51-4192	Layout Workers, Metal and Plastic
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic
51-4199	Metal Workers and Plastic Workers, All Other
51-9022	Grinding and Polishing Workers, Hand
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders
51-9122	Painters, Transportation Equipment
51-9191	Adhesive Bonding Machine Operators and Tenders
51-9198	Helpers--Production Workers
51-9199	Production Workers, All Other
53-2021	Air Traffic Controllers
53-3032	Heavy and Tractor-Trailer Truck Drivers
53-6051	Transportation Inspectors
53-7051	Industrial Truck and Tractor Operators
53-7062	Laborers and Freight, Stock, and Material Movers, Hand

APPENDIX B

Macroeconomics

Traditionally, economic development activities have focused upon the types of activities that are important from a macroeconomics standpoint, those things which add value to existing raw materials and are sold outside the local area: agricultural products, which are grown locally and are often further processed, adding even more value; oil, gas, coal, and other mineral production; products which are mined and sold in raw form or further processed and sold; manufacturing and assembly of raw materials or smaller subparts to add value and create new products to be sold, worldwide. Today, many add intellectual knowledge, which creates jobs in ways undreamed of by those who formulated economic theory hundreds of years ago.

APPENDIX C

Manufacturing

Recruiting new manufacturing jobs is the favorite pastime of most local, regional and state economic development organizations, whether private or government. New manufacturers generally pay much higher wages than retail or hospitality industry entities, generally offer very good benefits, pay significant dollars in education taxes, and hire large numbers of people. In addition, they often purchase significant local goods and services, attract other suppliers or customers to locate near them, and they sell their products regionally, nationally or internationally. This brings outside dollars to the community, with a large multiplier effect.

Since its high of 35 percent in 1955, manufacturing jobs have decreased substantially in the United States. Today manufacturing represents only 10 percent of American jobs. Although we are producing more goods we are doing so more efficiently with less labor. In a related trend, products that are labor intensive, are relatively inexpensive to ship, competitive in pricing and have low profit margins are now being produced in low labor cost markets. These markets include Mexico, South America, the Caribbean, China, India, Vietnam and other emerging or third world countries. That leaves a few thousand significant new manufacturing locations in the U.S. each year being chased by over 10,000 different economic development entities (many with huge budgets and staff dedicated to marketing and recruitment).

APPENDIX D

Community economics

As important as macroeconomics is to the world, it has little relevance to a local community's economic development efforts because at the local level, we can only minimally influence national or international economic activity.

In reality, local efforts can and should be targeted at any strategies which bring new dollars into the local economy, regardless of whether or not they grow the economy outside of their boundaries. Based upon our time spent in the *One East Kentucky* region, Appendix E discusses some non-traditional economic development activities which might deserve further attention. No judgement is intended in regard to who should undertake such activities or whether or not such activities are currently underway.

APPENDIX E

Non-traditional ways to grow a local economy

The following is a brief look at some of the non-manufacturing, non-retail activities or strategies that rural communities often use to grow their local economies, along with quick *One East Kentucky* region-related thoughts on each.

- Middle/high income retirement recruitment is a proven method for certain types of communities to grow their population and their economy. The *One East Kentucky* region has many of the criteria that higher income retirees seek, including reasonable real estate costs; low crime; reasonable taxes; golf, hunting; fishing; access to higher education; cultural activities; and, hospitals/medical care. The Consultants were amazed at the high quality of life available in the region. Although there are no large cities in the nine counties, the region has a total population of over 200,000, with approximately 63,000 of those living in Pike County. Pikeville, the largest community, is home to approximately 7,000 residents and has the amenities of cities much larger. Numerous other communities in the region have similar potential, with Prestonsburg and Hazard being two of them.
- Medical growth and recruitment is an incredible way to increase local economic activity, improve quality of life and attract new residents and businesses. The *One East Kentucky* region certainly has potential in this competitive arena. A close working relationship with local hospitals and related entities can pay huge rewards. Pikeville Medical Center, with 300 beds, is a regional hospital and a member of the Mayo Clinic Care Network.

It offers a wide array of services and employs approximately 2500. The University of Pikeville operates the new College of Osteopathic Medicine and the new Kentucky College of Optometry. Medical growth can pay huge benefits to the region.

- Tourism activities, including historical tourism, are great ways to bring outside dollars into a community, thus increasing retail sales and the size of the local economy. From the Hatfield's and McCoy's to big name entertainment, to changing of the seasons to water sports and incredible State Parks, the *One East Kentucky* region has it all. Existing tourism efforts appear strong but few people outside of the region are aware of the opportunities available during a multi-day stay. It might be an excellent project to have a university business or tourism class conduct tourism asset mapping for the region, if that has not already been done. Finding ways to lengthen the tourism season or finding ways to get visitors to stay one extra day are key tourism strategies utilized by many.
- Higher education is a great economic driver. *One East Kentucky* currently has several technical schools/community colleges and the University of Pikeville. Expand them and population and incomes are likely to grow.
- Movie/film/video recruitment can create excitement and bring many new dollars into local economies. We did not research the Kentucky movie/film recruitment efforts, but if there is an agency responsible for recruiting such media they need to know about the region's unique assets, such as your stark mountains and flat mountain tops, to name a few. This is a great opportunity for a university-level class project –inventory your unique assets, create descriptions and take pictures. Provide this information to whomever coordinates/facilitates movie/video production in Kentucky. You also have available buildings with potential to serve as sound stages. We are optimistic that the region has a future in this arena.
- Distribution or wholesale distribution, as it is often called, normally involves facilities which accumulate goods in mass from numerous sources, and redistribute those goods to company stores or independent retailers within a radius of the facility. Access to interstates, to rail and ports, as well as to relevant markets are normal drivers in the site selection process related to distribution. *One East Kentucky* probably has some potential for regional distribution centers, due to the proximity of numerous metropolitan areas within a one-day truck drive. Lack of immediate interstate access is a negative.
- Back office, headquarters and data/information centers are great projects which have the potential for huge economic impact. The existence of multiple/redundant sources of extremely high speed data transmission is

a pre-requisite on most of these projects. Our research was not deep enough to allow us to really assess this potential but there appears to be some opportunity if the “Bit Source” experience of teaching coal miners to code is successful. That would illustrate tremendous potential to create a digital/technology presence in the region.

- Coal, oil, gas production and further processing are base economic drivers with huge multiplier effects. Although the coal industry has been on a steady decline and the potential of your high end, clean coal appears to be limited at present, existing companies serving specialty markets must be supported, while the industry diversifies or recreates itself.
- Agriculture can drive an economy, but your region’s limited acreage for traditional farming does not appear to be sufficient to warrant real potential.
- Entrepreneurship, the micro-gardening of new business, is being heavily touted as the future of the U.S. by many. The Consultants are very impressed by the entrepreneurial spirit witnessed in the region. Live entertainment, great local foods, craft beers and bourbons are available in parts of the region, with Pikeville leading the way. Further research is needed, but the potential for some type of innovative specialty incubator is probably high.
- Other – there are, of course, additional non-traditional economic development ways to grow a local economy. As stated previously, anything which brings in new, outside dollars creates new wealth within the community. Regional, state, federal or private prisons, state or federal agencies, and even non-profit organizations with a regional base are great examples. Retail, of course, creates wealth as long as there is a net inflow of dollars versus retail dollars being spent elsewhere.

APPENDIX F

CNC Machinist Now

CNC Machinist Now is a **16-Week accelerated training program** geared toward taking our out-of-work east Kentucky coal miners into new manufacturing jobs. College credit is not awarded for this program, rather it is designed as an accelerated program of study around industry-recognized credentials based on skills needed for a career in CNC Machining and Manufacturing.

Haas Technical Education Network

An industry & education-led initiative that enables manufacturing technology educators and their schools to acquire the latest CNC machine tools and related CNC ancillary equipment, software and educational materials. The eKentucky Advanced Manufacturing Institute (eKAMI) is the latest HTEC program and will provide students with a relevant high tech and hands-on educational experience. The first students will be former coal industry workers transitioning to new industry. The program will graduate work-ready CNC machinists, programmers & engineers for today's industrial employers as well the manufacturing challenges of the future. HTEC members can tap into a network of over 1700 institutes as well as nearly 100 CNC Technology Partners, who are pledged to support CNC education.

National Institute for Metalworking Skills (NIMS)

The HTEC program is certified by the National Institute for Metalworking Skills (NIMS). NIMS operates under rigorous and highly disciplined processes as the only developer of American National Standards for the nations metalworking industry.

NIMS Credentials

(Required for successful completion of course)

1. NIMS Measurement, Materials & Safety
2. NIMS Job Planning, Benchwork & Layout
3. NIMS CNC Mill Operator
4. NIMS CNC Lathe Operator
5. NIMS Milling: Programming, Setup and Operations Level 1
6. NIMS Turning: Programming, Setup and Operations Level 1

NIMS Credentials

(Optional, but NOT required to complete course)

1. NIMS Manual Drilling Level 1
2. NIMS Manual Milling Level 1
3. NIMS Surface Grinding Level 1
4. NIMS Manual Turning: Chucking Level 1
5. NIMS Milling: Programming, Setup and Operations Level 2
6. NIMS Turning: Programming, Setup and Operations Level 2
7. Mastercam Mill Design and Toolpaths