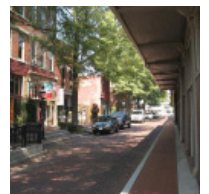
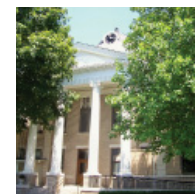
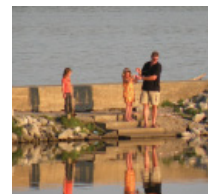
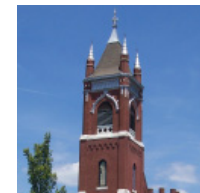


# Purchase Future

An Economic Strategy for the Purchase Region of Western Kentucky

Prepared for the Western Kentucky Workforce  
Investment Board and the Purchase Area  
Development District | **June 2010**



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The Purchase Future Regional Strategy was made possible by a multitude of civic leaders, researchers and staff members who have given generously of their time, passion and expertise to collaborate on this vision for regional prosperity.

First and foremost, we would like to thank the Commonwealth of Kentucky, the West Kentucky Workforce Investment Board, and the Purchase Area Development District for their trust and support.

In addition, significant input was provided by individuals throughout the region – from each of the eight counties – in personal interviews and opportunities workshops. The time and effort on the part of many to provide this input is appreciated.

### THE PURCHASE FUTURE TEAM



The WEST KENTUCKY WORKFORCE INVESTMENT BOARD (WKWIB) is a nonprofit organization responsible for responding to

training needs, economic development, and workforce development programs throughout the Purchase and Pennyriple regions. The WKWIB oversees the One-Step Career Center System in the region in conjunction with local elected officials.



The PURCHASE AREA DEVELOPMENT DISTRICT is an eight-county regional planning and economic development group. The Purchase ADD has been an active and supportive partner with the

WKWIB by providing staff and assistance for WKWIB activities/contracts throughout the region. Its collaboration with and support of workforce development serves to enhance economic development initiatives in the region.



TIP STRATEGIES, INC. (TIP) is a privately held Austin-based economic development consulting firm committed to providing quality solutions for public and

private-sector clients. Established in 1995, the firm's primary focus is strategic economic development planning. In addition, TIP has experience with entrepreneurship, target industry analysis, workforce, and redevelopment. Our methods establish a clear vision for economic growth. Community leaders across the country have embraced the TIP model of Talent, Innovation, and Place to achieve successful and sustainable economies.



# 1: Executive Summary

Bordered by rivers on three sides and the Tennessee state line on the fourth, the Purchase Region stands apart. While its geography could tend to have an isolating effect, these very same features have long provided a mechanism for reaching out to the world. Historically, the region's fortunes were closely tied to the flow of goods along the inland waterways. This remains true today. However, in addition to these physical pathways, businesses and residents of the Purchase Region have the means to connect with markets and ideas around the world. Uncovering these connections and using them as the basis for a regional economic strategy is at the heart of this work.

This plan is intended to provide the leadership of the Purchase Region with the tools needed to maximize its opportunities. The strategies outlined are reflective of our view that economic vitality must be built on a skilled workforce, a climate of innovation, and a quality of place that attracts and retains talented individuals and companies. While we are committed to a realistic evaluation of the region, we have tried in this work to focus on the region's strengths and opportunities, rather than cataloging weaknesses and challenges.

## Purpose

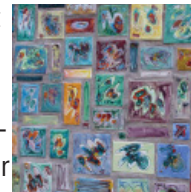
To help position the region for the future, the West Kentucky Workforce Investment Board (WKWIB) and the Purchase Area Development District (Purchase ADD) commis-

sioned the Purchase Future Project. Funded with support from the US Department of Labor, the WKWIB and the Purchase ADD engaged Austin-based TIP Strategies (TIP) to identify those sectors of the region's economy with the most promise for economic growth and to prepare an action plan for economic recovery.

To accomplish this task, TIP compiled demographic and economic data for the region and for individual counties. In addition, we held opportunity workshops in each of the eight counties. These tasks were supplemented by interviews with local employers, area institutions of higher education, state government officials, and others familiar with the region. Findings from these tasks were informed by our understanding of trends affecting economic development and workforce, as well as our experience conducting consulting projects across the US.

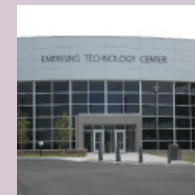
## Assets

**Manufacturing** in the region is more robust than in many parts of the country. However, continued shifts in production away from the US, coupled with the effects of the recession, has taken its toll. More than 4,000 manufacturing jobs have been lost in the region since the beginning of the decade. As manufacturing technology continues to advance, the number of production workers is likely to hold steady or



*"The Purchase Area is a land of contrasts. The peace and tranquility of rural life as opposed to the bustling activity of our larger cities; spacious vistas of cropland are set against the steel outcrop of industries; and the comforts of tradition are complimented by the excitement of innovation – all these are part of what makes the Purchase a special place in which to live and work."*

*Purchase Area Development District  
1988 Annual Report*



decline, while the required skill levels will continue to rise. Education and training must continue to be an integral part of the equation for the Purchase Region's economic future.

The Purchase Region also has a strong **agricultural** tradition. While development is sometimes at odds with this way of life, Purchase-area communities have largely been able to balance these oft-competing interests. The flexibility of local growers has the potential to open up a range of new products, as well as new uses for old ones. Tapping into consumer trends, such as organic and heirloom products, could expand market share. Although it has not kept pace with expectations, the potential for biomass production in the region remains high. Opportunities could include energy crops, such as switchgrass and sorghum, as well as waste-to-energy.

There can be little doubt of the region's **freight-related** strengths. With all but one of the eight counties bordered by rivers, a large share of the regional workforce is connected to maritime industries. The region's unique geography also offers the promise of connecting with other states, though this opportunity remains largely unrealized. With six states within easy reach – Tennessee, Arkansas, Missouri, Indiana, Illinois, and Ohio – Purchase Region residents can take advantage of a wealth of cultural and recreational amenities and businesses can readily access multiple metropolitan markets. Roughly two-thirds of the US population is within a day's drive, making the Purchase an ideal spot for small- to mid-scale logistics and distribution activity. However, with only one interstate highway in the region (I-24), the potential of this sector may be more limited.

The region's **higher education** network, anchored by Murray State University and Western Kentucky Community & Technical College, is a critical asset for moving the region forward. Construction of the new Emerging Technology Center, located on WKCTC's Paducah campus, and the Skilled Craft Training Center in Graves County represent significant accomplishments. WKCTC and its partners have made great strides in bringing partners together to make these facilities a reality. Ensuring that employers are maximizing these resources should be a focus of the region's economic strategy.

The Purchase Region has an abundance of **industrial sites** to offer prospective employers. Inexpensive power (relative to the nation), abundant water in most locations, and a strong network of regional roads that connect with I-24 could make the area appealing to employers. However, individual marketing efforts may fail to reach decision-makers in relevant industries. Marketing properties on a regional basis can help increase awareness of the opportunities in the region. A regional approach could also help place individual sites within a context for those outside the Purchase Region.

From the New Madrid Bend in the far southwestern portion of the region to Kentucky Dam in the north, water features are an essential part of the region's **recreation and tourism** assets. Walking trails, water sports, fishing and hunting all spring from the region's rivers or the lakes they helped to spawn. Capitalizing on the area's long maritime history and its important role in the Civil War offer additional opportunities for drawing in visitors, as do nationally recognized events such as the annual

Figure 1.1 | The Purchase Region



American Quilters Society Festival and the 130 year-old Fancy Farm picnic.

Finally, the region's **people** must be listed among its greatest assets. Purchase Region employers interviewed during the planning process cited workers' dedication, loyalty, and work ethic as a regional strength. Workforce has become a critical piece of the economic competitiveness puzzle and can be the deciding factor in a location or expansion decision. As a result, honing your workforce must be at the core of an economic strategy. As former Hewlett-Packard CEO, Carly Fiorina, famously stated it several years ago: "Keep your tax incentives and highway intersections. We will go where the highly skilled people are."



## Key Projects

Preparing a regional strategy begins with the identification of a broad range of assets and opportunities. These potential options are then narrowed down to those with the best chance of implementation and the highest potential for impacting a broad segment of the regional economy. The Purchase Region has a number of opportunities, many of which are identified in these pages. From this list, we recommend the following projects as priorities for the region.

- ***Talent.*** Nurturing and attracting talent is perhaps the most fundamental issue for creating long-term, sustainable economic vitality in the 21st Century. Advancing technology, global and regional demographic shifts, and changes in attitudes among the “next generation” workforce are but a few of the factors that require communities and regions to think and act differently about workforce. Implementing a talent management program should be the foundation of any economic strategy. The concept of talent management goes beyond traditional workforce development to include the retention and attraction of workers. The purpose of a talent management strategy is to bring regional organizations together around the task of building a talent pool that meets the needs of local companies, as well as those that are targeted for the future.
  - ***Pipeline.*** The concept of “pipelines” is simple. Workers are not like inputs in a manufacturing process – they cannot be scheduled to arrive in “just-in-time” fashion. On the contrary, the worker required for today’s job must be “ordered” years ahead of time. They must
- move through a pipeline of education and training that, in the best of all possible worlds, provides the requisite skills for the jobs that will be available to them at the other end. Unlike an actual pipeline, however, workforce pipelines are not closed systems. Typically, workers can enter a workforce pipeline at different points in time and from different parts of the country and, increasingly, the world. This fluidity means that workforce development boards must pay attention to both understanding and maintaining their regional pipeline, as well as assessing the factors that draw workers into the region and documenting any barriers to entry into key occupations. It means that it is not enough to understand what occupations are currently in demand in the region, but what occupations are likely to be in demand in the future. Continued investments in the region’s training and education infrastructure will be needed to ensure an adequate supply of labor and a healthy economy.
- ***Energy.*** Concerns about the downsides of oil production (security concerns, environmental degradation, price volatility) continue to drive interest in identifying alternative sources of energy. As a result, public and private investment in the energy sector will continue to increase for the foreseeable future. The Purchase Region has opportunities associated with cultivating new sources (biomass, hydrokinetics), as well as leveraging continued advances in existing fuels (shale gas, coal-to-liquid, nuclear). Along with opportunities for business growth and capital investment, a focus on energy can help moderate costs for existing industry, many of which have extensive energy inputs. In addition, energy





*I started out thinking of America as highways and state lines. As I got to know it better, I began to think of it as rivers. Most of what I love about the country is a gift of the rivers.*

*Charles Kuralt, A Life On the Road*

technology has been identified as a significant source of “middle skills” jobs — those requiring some level of training but less than a college degree.

- ***Infrastructure.*** Continued improvements to the region’s transportation linkages will present a significant advantage from an economic standpoint. Completion of the Interstate 69 corridor offers the possibility of dramatic expansion in the flow of goods and people through the region. Support of this effort should be a priority, although the massive scale of the project means that much of it is outside of the region’s control. Closer to home, improvements to the Highway 80 bridges will have a similar effect on access, albeit on a smaller scale. Widening of the bridges will provide a more feasible option for eastbound travel for much of the region, improving access to other areas of Kentucky and to key transportation routes, like Interstate 24 and the Nashville area. Likewise, the Kentucky Lock Addition project, which will replace the existing 600-foot lock with a 1200-foot lock, will increase capacity and speed transit times along this important maritime route. The availability of technology infrastructure has become critical for both residents and businesses. News that West Kentucky and Tennessee Telecommunications Cooperative (WK&T) has been selected to receive more than \$123 million in loan and grant funding to build a fiber optic network can contribute greatly to the success of many of the strategies outlined in this document.
- ***Entrepreneurship.*** Across the nation, economic developers and workforce professionals have embraced entrepreneurship as a means of promoting economic

diversification and stimulating economic growth. The reason for this interest in entrepreneurs is two-fold: 1) an economic transition in the US that has created more market opportunities for entrepreneurs and 2) the recognition that entrepreneurs can be more deeply rooted in their communities, which increases both their economic and social impacts. The rising interest in entrepreneurship also reflects certain realities about our changing relationship to work. Driven by a range of factors including widespread access to information technology and the loss of job security due to globalization and automation, we have seen the rise of a generation that no longer defines themselves in terms of corporate employment. This view has only been reinforced by the current economic downturn. Workers are less bound to a specific place or job than prior generations – functioning almost as an “economy of one.” Location decisions are made based on the ability to connect with and access a network of people and ideas. Harnessing this wave should not be overlooked.

- ***Tourism.*** While the region has a number of tourism-related assets, they are not well linked with each other or with the broader region. Taking steps to publicize assets and events and to establish connections among them will make tourism efforts more successful. Tourism promotion is an opportunity that is common to all counties in the region. However, without additional investments in related areas, such as lodging, transportation, and quality of place attributes, a tourism strategy will not deliver on its full potential.





- Sector-based approach.** Implementing a sector-based strategy to support key industries should be considered. Sector-based strategies are regional, industry-specific approaches to workforce needs, implemented by an employer-driven partnership of relevant systems and stakeholders. These efforts should tie in with existing initiatives, such as the State Energy Sector Partnership. In addition, strategies should incorporate “lessons learned” from other sector-based models. The National Governors Association Center for Best Practices’ June 2010 report on the Automotive Manufacturing Technical Education Collaborative (AMTEC) — originated as a partnership between Toyota and the Kentucky Community & Technical College System — can provide a starting point.
- International strategy.** A number of strategies outlined in this plan will benefit from an international approach. As the recent economic crisis clearly illustrated, today’s markets are truly global. It is no longer sufficient for an economic development strategy to rely on domestic markets. An international focus would help position the region to benefit from rising income levels and corresponding growth in worldwide consumer markets. Along with expanding traditional international trade (export) activities, bringing a more global outlook to the Purchase Region could take the form of targeting countries for foreign direct investment and tailoring tourism opportunities to priority markets.
- Marketing.** A common thread underlying many of the ideas discussed above is that of enhancing the regional image. For any economic and workforce development

strategy to be successful, a concerted effort must be made to communicate a new image of the Purchase Region to those within Kentucky and outside its borders. This effort should begin with traditional recruitment targets, such as real estate developers, corporate executives, and other decisionmakers in key industry sectors. However, equally important to this effort will be raising the profile of the region with federal and state officials. Networking and relationship building will be a critical element of this strategy. Current residents of the Purchase Region, who are often your best ambassadors, should be the focus of an internal marketing campaign.

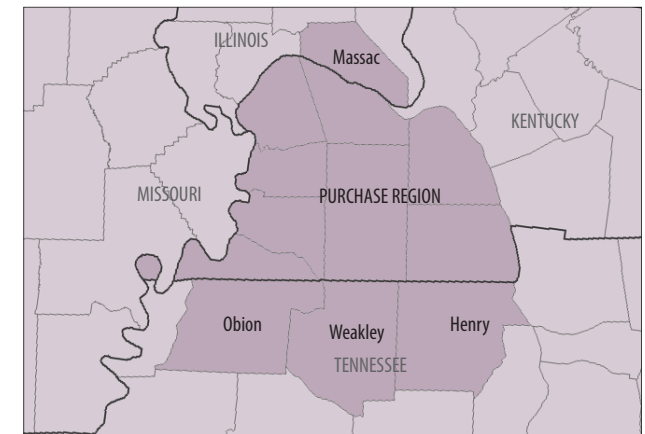
- Regional outlook.** The Purchase Region has taken a significant step in commissioning this regional strategy. The many assets and opportunities outlined in this work will benefit from a shared vision for economic growth. In addition, the data analysis and discussions with area leaders point to increasing connections with counties to the north (particularly Massac County, Illinois) and the south (including Henry, Obion, and Weakley Counties in Tennessee). In the development of the strategies outlined in the report, consideration was given to the assets of these neighboring counties. We recommend that regional leaders from these counties be incorporated in the implementation of these strategies.

## Moving Forward

The first stop on the region’s forward path is to enhance the things that it already does well. **Chapter 2** provides an overview of existing strengths in four sectors: manufacturing, transportation (including maritime), agriculture, and

**Figure 1.2 | Regional Connections**

Growing connections with neighboring counties



healthcare. Understanding the challenges faced by firms in these sectors and providing resources to address them should be an essential element of a regional strategy.

The next stop on the route to economic growth is to explore new options for the region. **Chapter 3** describes emerging opportunities related to energy, tourism and entrepreneurship. While success in these arenas will require a coordinated approach, the potential for them to re-invigorate the Purchase area economy makes them valuable additions to the region’s economic strategy.

**Chapter 4** provides an overview of fundamental building blocks that will need to be strengthened if the region is to be successful. These include implementation of a talent management strategy, support for proposed infrastruc-



*The Great River Road in Kentucky begs to be billed as the place to unwind, relax and enjoy the scenery. A place close to the city but decades away. ... Indeed, it is the contrast between the urban centers of St. Louis upstream and Memphis downstream that give this area its special appeal.*

*Great River Road Corridor Management Plan, prepared for the Purchase Area Development District, December 2008*

ture projects, and continued attention paid to business climate concerns. Finally, a regional data profile, including an occupational analysis, is provided as an appendix.

Regional plans face a number of challenges to implementation — establishing a common vision, gaining consensus on priorities, identifying a champion, and obtaining commitments for resources for implementation. The strategies outlined in these pages provide a roadmap for navigating these challenges. ■



# 2: Existing Strengths

In preparing an economic strategy for the Purchase Region, we begin by documenting existing strengths. In terms of its employment base, the Purchase economy is tied to a number of traditional sectors. Providing support to these existing sectors should be the fundamental step of a sector-based strategy.

An analysis of location quotients (LQs), reveals the region's strengths in farming, transportation and warehousing, and manufacturing. The region's lowest LQs are in industries often associated more with urban areas. These include professional services, finance/insurance, real estate, and corporate headquarters.

## Manufacturing

Manufacturing has been a key driver of Western Kentucky's economy. Like much of the nation, however, the region has seen significant declines in this sector, with nearly 3,000 jobs lost in the last 5 years alone. Supporting regional manufacturing and related activities should continue to be a priority for workforce and economic professionals.

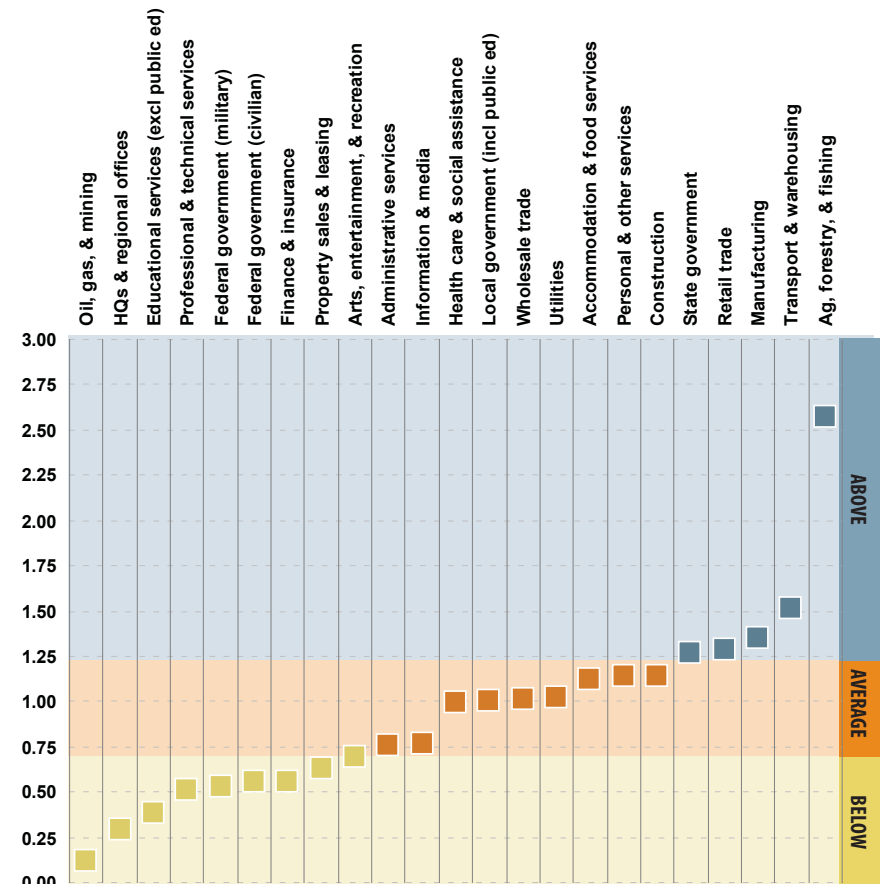
## Chemicals

The region is home to a number of major chemical operations, including ISP Chemicals, Westlake Chemicals, Wacker Polymer, Sekisui Specialty Chemical, and Arkema. With roughly 2,700 workers across the eight-county

*A location quotient (LQ) is calculated as a local industry's share of total local employment divided by the same industry's share of employment at the national level. If the local industry and national industry are perfectly proportional, the location quotient will be 1.00. If an industry is heavily concentrated at the local level (the automotive industry in Detroit, technology in Silicon Valley, gambling in Las Vegas are some examples), then the location quotient will be higher than 1.00. Conversely, if the industry is sparsely concentrated at the local level (for example, farming in New York City, convention tourism in North Dakota), then the location quotient will be lower than 1.00.*

**Figure 2.1 | Purchase Region industry sector concentrations**

US average = 1.00



Source: EMSI, Spring 2010 forecast

region in 2009, chemical production is the largest segment of the Purchase's manufacturing employment.

### **Challenges:**

- ✓ **Economic conditions.** The products of this sector are used to make a wide range of industrial and consumer products. As a result, demand is tightly connected to the performance of the national and global economy. Local firms report growing optimism about the future as consumers and businesses begin buying again. Any slowdowns to the recovery (real or perceived) could dampen confidence and slow purchasing.
- ✓ **Aging workforce.** Discussions with local employers point to the approaching retirement of the baby boom generation as one of the most critical issues facing the industry. Representatives from one plant indicated that 50 percent of their existing workforce was expected to retire within the next five years. Employers also listed working with younger workers and balancing the needs of multiple generations among their workforce challenges.



- ✓ **Engineering & instrumentation.** Due to the nature of the industry — processes involving often complex chemical reactions that must be carefully monitored and controlled — there is a large demand for engineers and skilled technicians in this industry. The need for chemical engineers and instrumentation-related occupations was cited across multiple industries. Chemical industry representatives expressed the need for a stronger marketing strategy, including tourism, to attract people to the region.
- ✓ **Energy volatility.** Energy inputs to the chemical industry are often high. Kentucky's low rates have been an important factor in drawing these operations to the state. Costs are particularly important to the chemical industry, since natural gas and petroleum often serve as feedstocks. Energy-related inputs (direct energy requirements and feedstocks) can account for as much as 50 percent of production costs. Maintaining the state's existing energy advantage, while balancing environmental and regulatory concerns, will be essential to the health of the industry in the region.
- ✓ **Regulation.** There is growing concern about the potential impact of federal regulations on the industry's competitiveness. Like virtually all employers, concern about the impacts of health care reform are cited as challenge for chemical manufacturers in the region. However, because of the industry's energy-related demands, the prospect of tightening regulations around clean air and other environmental issues, including cap and trade, is viewed as a significant factor affecting future growth.

- ✓ **Foreign competition.** Chemical companies in the Purchase Region and elsewhere cite growing foreign competition as a challenge to growth. While the industry looks to emerging markets, such as Brazil, China, India, and Eastern Europe for future growth, US chemical manufacturers also face increased competition from Asian producers.

### **Opportunities:**

- ✓ **Specialty chemicals.** This industry includes a variety of chemicals, such as resins, coatings, plastics, cleaners, and synthetic fibers, that are used in a broad range of consumer products. Continued improvement in the economy, coupled with demand for new products (see advanced materials/plastics below) should translate to continued growth in this sector.
- ✓ **Advanced materials/plastics.** Demand for energy efficient and eco-friendly products is creating a market for new materials. Examples include lightweight plastics used in fuel-efficient vehicles, films used in solar cells, and emerging products such as bioplastics. Industrial chemicals are the base from which most advanced materials are made.
- ✓ **Industrial gases.** The region's manufacturing base, chemical expertise, and relatively low energy costs suggest an advantage for the production of industrial gases, such as liquid nitrogen. Aqueous hydrogen fluoride will be a product of the conversion of depleted uranium at the Paducah Gaseous Diffusion Plant. While it is not clear what regulations might apply, the



company in charge of the project, Uranium Disposition Services (UDS) states the hydrogen fluoride will have commercial value. However, additional growth in chemical-related industries could exacerbate shortages in key occupations.

### Food processing

Anchored by Pilgrims Pride, the region has a cluster of food processors. The food processing industry includes establishments that prepare livestock and other agricultural goods for use as an input into another product or for sale to consumers. Nationally, food processing accounts for 12 percent of manufacturing employment. For the Purchase Region, the industry accounts for 21 percent of manufacturing jobs.

#### Challenges:

- ✓ Corn prices. Feed is the largest direct cost for livestock production, typically accounting for 30-40 percent of sales. Corn prices are affected by a complex set of variables, including the amount of acreage planted, crop yield (which is affected by factors such as weather, pests, and disease), government subsidy programs, and market demand. As a result, pricing can vary up to 50 percent within a year. Continued global population growth, along with the expansion of corn as a feedstock for products ranging from consumer goods to fuel, is likely to contribute to rising costs in the coming months.
- ✓ Talent retention. The vast majority of jobs in the food processing and livestock production require

minimal skill levels. As a result, wages are low and turnover is typically high. As the level of automation in agricultural production rises, these workers often need training to operate and maintain increasingly sophisticated equipment. As these investments in training are made, retaining workers may be more of a priority. Retention of management positions can also be challenging for these operations, particularly in non-metropolitan areas.

- ✓ Regulation. Food processors are subject to a variety of local, state and federal government regulations that focus on worker safety, food safety, and the proper disposal of processing wastes. Manure disposal is a significant issue for livestock operations. Wastewater treatment — the by-product of extensive washing operations to remove pesticide residues — is a concern for processors of fruit and vegetable crops. Worker safety is improving, however, the annual rate of injury and disease for workers in poultry production is nearly 60 percent higher than the average for all US workers.
- ✓ Consumer preference. Changing consumer preferences are a significant factor for food processors. Public concern about the use of hormones and antibiotics are forcing changes in livestock production, as are concerns about the conditions in which animals are raised and processed. Debate over the safety of genetically modified foods affects crop production and the use of genetically modified seeds limits export potential. Consumption patterns can be affected by incidences of diseases such as avian flu,

### Bioplastics

Bioplastics are plastics in which all carbon is derived from renewable feedstocks. They may or may not be biodegradable. Biobased plastics contain both renewable and fossil-fuel-based carbon. The percentage of biobased ingredients and the conditions under which the biobased product may biodegrade, if at all, vary widely.

Products on the market are made from a variety of natural feedstocks including corn, potatoes, rice, tapioca, palm fiber, wood cellulose, wheat fiber and bagasse. Products are available for a wide range of applications such as cups, bottles, cutlery, plates, bags, bedding, furnishings, carpets, film, textiles and packaging materials. In the US, the percentage of biobased ingredients required for a product to be referred to as biobased, is defined by the US Department of Agriculture on a product-by-product basis.

*SOURCE: Institute for Local Self-Reliance*

“The idea of producing polymers from renewable biomass has attracted much attention due to the increasing concerns of environmental problems and the limited nature of fossil resources. [Bio-based polymer, polylactic acid or PLA], is considered a good alternative to petroleum-based plastics, as it is both biodegradable and has a low toxicity to humans”

*SOURCE: “Scientists crack sustainable plastics puzzle,” Businessgreen.com, November 24, 2009*

**Figure 2.2 | Acres of soybean crops by county**  
**2007 Census of Agriculture**

County	Acres	State Rank
Ballard	32,602	12
Calloway	34,121	11
Carlisle	27,794	16
Fulton	48,150	7
Graves	53,964	3
Hickman	45,868	8
Marshall	10,114	30
McCracken	19,998	19
TOTAL	272,611	—

SOURCE: US Department of Agriculture, National Agricultural Statistics Service. County's rank out of 100 Kentucky counties that produce soybeans.

*As Kentucky producers look at ways to increase returns, non-GMO and specialty soybean production should be considered along with ways to improve the value of all production, such as selecting varieties with end use characteristics like higher protein and oil content, and working to obtain premiums for the added value.*

SOURCE: "Market Opportunities for Food Uses of Kentucky Soybeans," Market Solutions LLC, 2002

swine flu, and "mad cow" disease (bovine spongiform encephalopathy), or bacterial outbreaks such as E. coli or salmonella. Diet fads, health-related news stories, and consumer-driven campaigns, like the local food movement, can also have a significant impact on product demand. Specialty processing operations are often driven by national demographic trends, including smaller household sizes, aging populations, and increasing demand for ethnic foods.

**Opportunities:**

- ✓ **Soybeans.** Value-added processing of soybeans was identified as an opportunity for Kentucky growers in a 2002 report produced by the Kentucky Soybean Promotion Board and the Kentucky Agricultural Development Board. Soybeans rank among the top three agricultural products in terms of acreage for all eight of the Purchase Region counties. Two counties — Graves (#3) and Fulton (#7) — rank among the state's top 10 counties for soybean acreage. Opportunities identified range from providing non-genetically modified, food-grade beans for export to value-added processing (including flaking, milling, pressing) to producing consumer products using Kentucky soybeans as an ingredient. For producers that can meet strict requirements of end-users, the report indicates that international markets, particularly Japan, are expected to see continued growth.
- ✓ **Edible oils.** The manufacture of edible oils is performed using a range of ingredients and processes. The industry includes wet-milling corn (separating

corn into its basic components); processing soybeans, tree nuts, and vegetables into oil; refining vegetable fats; and blending vegetable fats with animal fats. The Purchase Region's strengths in grain and livestock production, coupled with access to the Mississippi River (the primary means of transport for these products is by barge) and low energy costs relative to other states, could provide an advantage in this area. However, finding the technical workers required by this industry could be a challenge.

- ✓ **Pet food.** Growth in the US pet food manufacturing industry as a whole is expected to be modest with continued competition from abroad. However, the premium segment is expected to continue to expand, particularly once the economy rebounds. This segment includes products containing higher quality or organic ingredients and those marketed as having specific health benefits. Growing concern about pet obesity and disease, as well as incidents of contamination have raised awareness about the quality of ingredients in pet food and bolstered prospects for the specialty pet food market. While the pet food market is highly competitive, small manufacturers can be successful by serving a local market and distinguishing themselves with specialized offering. The variety of processing and agricultural operations in the region could be an asset for this industry.
- ✓ **Specialty foods.** National trends continue to point towards growth in specialty foods. Consumer preferences for healthy options (low fat, organic, special diet), demand for convenience foods (pre-cut, single-



serving portions) and growth in ethnic and gourmet segments are examples.

- ✓ International. Growing economies such as China, India, and Brazil have fueled demand for US products. Helping food processors access existing initiatives such as the federally funded Market Access Program (MAP), should be part of this strategy. The Southern United States Trade Association, a non-profit agricultural export trade development association of which Kentucky is a member, works with state agriculture agencies to facilitate trade events under this program.

### Metals & metalworking

The Purchase Region has a concentration of employment in primary metals relative to the nation as a whole, with nearly 600 workers in the industry. The majority of this total is accounted for by three Marshall County companies: CC Metals & Alloys, Gerdau Ameristeel, and Alcan Composites (now 3A Composites). The industry includes companies engaged in smelting and/or refining ferrous and nonferrous metals, such as iron and steel mills, rolled steel shape manufacturers, aluminum producers, and copper foundries. End users of products in this industry include construction, transportation, and other firms in the primary metals industry.

The region has more workers employed in fabricated metals, with roughly 630 jobs in this industry in the eight counties. However, this level of employment is slightly below the level expected based on national patterns, suggesting an opportunity for additional growth. Unlike primary metals, employment in this industry is more

widely distributed across the region. With a few exceptions, like firearms manufacturer Remington Arms, firms in this industry are likely to be machine shops employing 50 people or fewer. Demand for products in both primary metals and metal fabrication is driven by the manufacturing sector, particularly industries related transportation and equipment manufacturing. The construction industry represents another significant driver of demand.

### **Challenges:**

- ✓ Economic conditions. Products for metals and metalworking establishments are highly affected by consumer demand. In addition to sluggish demand, competition from imported materials, particularly steel, continues to depress prices further affecting profits. Aluminium prices have been suppressed by worldwide aluminium inventories, which exceeded 4 million metric tonnes in June of this year.
- ✓ Energy. Energy is a significant cost for metals-related manufacturing, particularly for primary metals producers. As a result, companies in this industry are very vulnerable to fluctuations in energy costs.
- ✓ Environment. While modern production processes have significantly improved the industry's environmental footprint, metal working can produce negative impacts for air, water, and soils. In addition to mitigating current emissions, many firms also have costs associated with the clean-up of past contamination.

- ✓ Alternate materials. Ironically, the growth in advanced materials that is expanding opportunities for the chemical industry presents a challenge for metal producers as these alternatives continue to replace traditional materials in applications such as automobiles and consumer goods.
- ✓ Scrap costs. Mini-mills transform scrap iron into semi-finished products such as sheets, bars, or wire. As more steel is produced from scrap (rather than ore) in the US and elsewhere, costs for scrap metals have spiked.

### **Opportunities:**

- ✓ Recycling. In addition to providing a source of scrap metals, growth in the recycling industry presents opportunities for area companies. A 2008 study by the Kentucky Cabinet for Economic Development points to opportunities for the recycling of materials in state, as well as capitalizing on the growing electronics recycling market, or "e-cycling."
- ✓ Automotive. Both steel and aluminum are important inputs to the automotive industry. While steel is still



the largest component by weight, aluminum usage has increased dramatically. Marketing the region's assets to automotive manufacturers and suppliers would benefit these industry segments.

- ✓ Green building. The US Green Building Council predicts the green building products and services market will reach \$60 billion this year. This growth presents opportunities for local companies to increase their share of the market for high-performance architectural products.

*Kentucky has the potential to be not only a leader, but also on the cutting edge of [the electronics recycling] industry. Most of today's recycling is in the areas of aluminum, steel and plastics, but electronic recycling or "e-cycling" has the potential to create revolutionary growth for those states that take the necessary steps to catch this wave of growth.*

*Profile of Kentucky's Recycling Industry, October 2008 prepared by the Kentucky Cabinet for Economic Development*

### Transportation equipment

Employment in transportation equipment manufacturing in the Purchase Region is slightly above the national average and is spread across the industry's major segments — automotive parts suppliers, shipbuilding, and rolling stock (rail). This diversity reflects the region's strong ties to the rivers, the presence of Progress Rail, and the fact that the region lies within a multi-state area with significant strengths in the automotive industry. While the industry was hard hit by the recession, growth is expected in some segments.

Growth in automotive-related manufacturing is likely to be the result of pent-up demand (as people are forced to replace vehicles they have "limped through" the recession) and government policy (as new federal regulations come into effect).

#### Challenges:

- ✓ Economic conditions. Like most manufacturing industries, demand for transportation equipment is heavily influenced by consumer confidence. Given the uncertainty surrounding recent signs of economic recovery — with some analysts still fearing the "double-dip" recession — consumer spending on large-ticket items remains sluggish. In addition, car sales have dropped dramatically as large-dollar incentives that had been offered to entice consumers into dealerships during the recession's peak have come to an end.

- ✓ Workforce. Despite layoffs and high levels of unemployment, occupations in this industry are in short supply nationally. Many automotive production workers are aging out of the workforce and those that remain are not likely to have skills that match new technologies that will be required by the industry. Industry employment is trending away from union membership, complicating the ability of a new operation to find workers in the region or in neighboring states without right-to-work laws.

#### Opportunities:

- ✓ "Green" transportation. Concerns about global warming and national security issues associated with gasoline consumption, together with increasing fuel costs will continue to drive interest among consumers and lawmakers in sustainable or green transportation options. While no one can say exactly what this means for the transportation equipment industry as a whole, there is little doubt that companies will be looking to advances in energy storage (batteries), as well as the production of advanced materials (lighter, easier to recycle) and instrumentation.
- ✓ Heavy rail. Federal investments in passenger rail, are likely to translate into a significant level of spending on rolling stock, which American manufacturers have largely abandoned. Although the primary players in this industry are European and Asian firms, increasing orders from the US have





led them to build or expand their manufacturing capacity here. A strong push by the US Department of Transportation for freight rail over trucking should also spur expansion of activity in this arena (which could translate to logistics, manufacturing, or maintenance depots). The Purchase Region's talent pool in transportation and industrial engine maintenance is a plus.

- ✓ **International.** Opportunities for international investment in transportation equipment manufacturing are likely to increase as carmakers in China and India begin to look outside their domestic markets. Growth in China is also fueling exports of automotive parts and accessories. According to the Motor and Equipment Manufacturers Association, US exports of auto parts to China increased almost 300 percent between 2000 and 2009.

## Transportation & Warehousing

The Purchase Region has a strong concentration of employment related to the transportation of freight, much of it driven by the presence of the four rivers. In addition, the region's geographic location in the Greater Ohio Valley places it at ground zero for logistics operations, with two-thirds of the US population within a day's drive (500 miles).

A review of location quotients (**Figure 2.4**) reveals the area's high concentration of transportation and materials moving occupations. The supply of workers in this category suggests an advantage for logistics and transport-

related industries. The development of a strong logistics sector in the region is hampered, at least in part, by the absence of a strong road network in parts of the region.

### Maritime

Kentucky plays a vital role in the nation's inland waterways connecting southern ports with middle America, Canada, and points beyond. With two existing riverports and two more under consideration, marine industries will continue to be a key component of the Purchase Region economy.

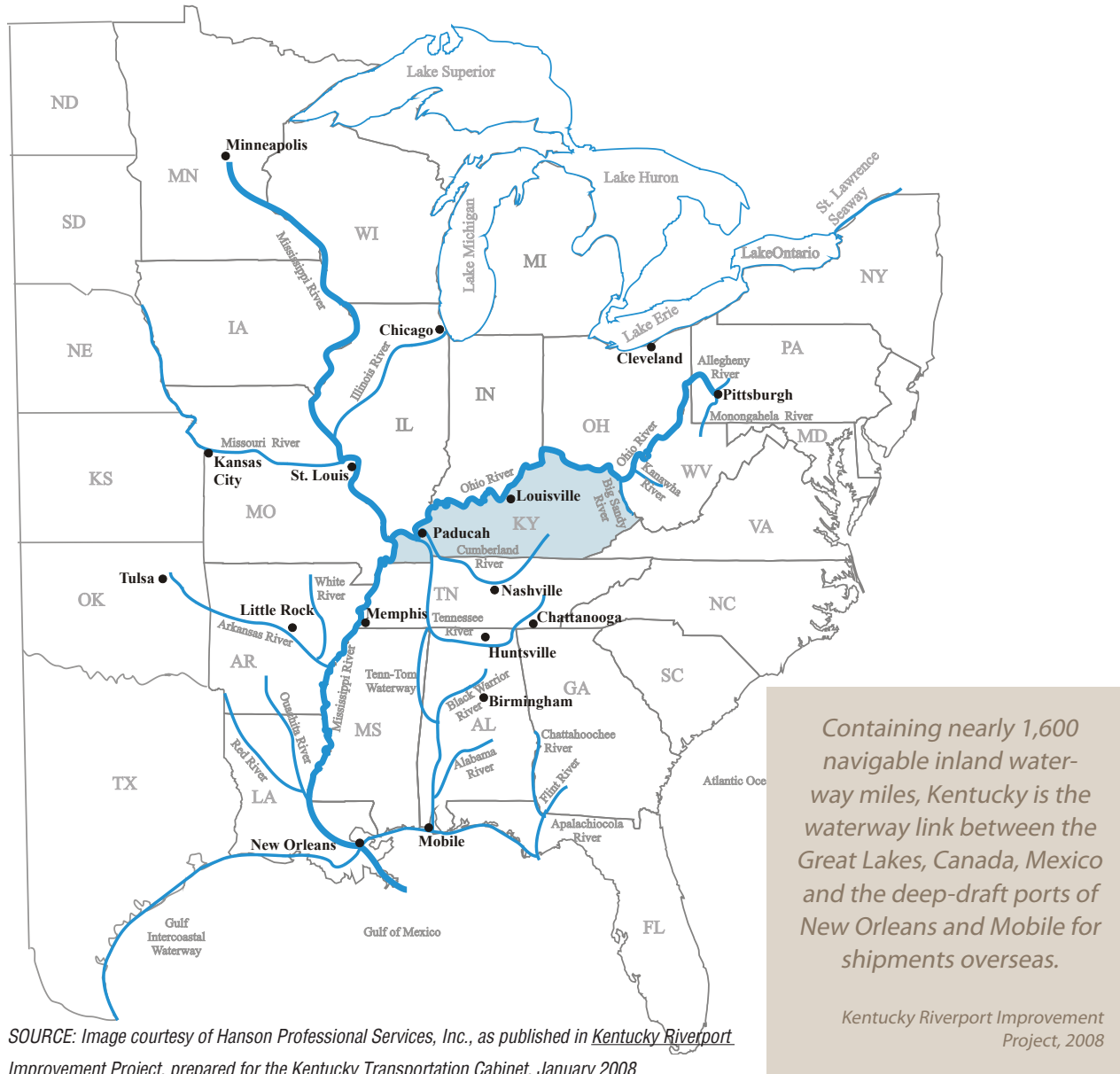
Aspects of the industry present in the region include barge transport, repair and maintenance, and fueling and stocking services. In addition, Paducah is home to the Center for Maritime Education, a state-of-the-art towing training center that has trained more than 7,000 marine industry professionals since it was established in 1997.

### ***Challenges:***

- ✓ **Competition.** A search of US Army Corps of Engineer port data lists hundreds of facilities along the Mississippi River alone. In addition, barge operators compete with other modes of transporting bulk materials and liquids, including rail, trucks, and pipeline. The consolidation of the inland barge industry in recent decades has concentrated ownership of a large portion of the nation's barge fleet among a relatively small number of companies.
- ✓ **Economic conditions.** Like a number of other industries discussed in this chapter, economic conditions have a tremendous impact on demand



Figure 2.3 | Inland waterway system



SOURCE: Image courtesy of Hanson Professional Services, Inc., as published in *Kentucky Riverport Improvement Project*, prepared for the Kentucky Transportation Cabinet, January 2008.

for this industry. Fuel costs are also clearly a significant factor in transport costs.

- ✓ **Regulation.** Barge operators are subject to a number of federal regulations concerning environmental impacts, ownership, and safety. While some regulations have resulted in positive changes in the industry — the mandated double-hull tanker design is credited with achieving enormous reductions in the rate of oil spills — they can translate into significant costs.
- ✓ **Lockage fee.** The proposal to institute a lockage fee as a means to supplement the Inland Waterways Trust Fund would have a significant impact on the industry. Current versions of the Water Resources Development Act of 2010 have replaced this proposal with an increase on the existing diesel fuel tax.
- ✓ **Asian carp.** Fears this invasive species could soon reach the Great Lakes have prompted calls for lock closings and re-routing of inbound traffic. So far these threats have not been realized, however, legislation continues to be proposed that could have direct consequences for maritime industries.

**Opportunities:**

- ✓ **Panama Canal.** The installation of new locks in the Panama Canal is predicted to have a dramatic impact on worldwide trade patterns. However, this change is not viewed by some as a significant op-



portunity for the Purchase because of limitations of Mississippi River “gateway” ports with regard to handling of container traffic. The Mississippi Department of Transportation has formed the Mississippi Container-on-Barge Marine Highway Intermodal Supply Chain (MsCoBMHISC). Tracking investments at these ports should be part of this strategy.

- ✓ Ethanol industry. Growth in ethanol use presents a dual opportunity for the inland barge industry. First, production of ethanol relies on corn as a feedstock, driving higher corn shipments via barges. Second, ethanol is highly corrosive and cannot be transported by pipeline. Tank barges can be a cost-effective way to transport the additive from plant to market.
- ✓ Talent. The Center for Maritime Education trains hundreds of mariners each year. Capitalizing on the presence of this unique institution should be a focus of a maritime strategy. Actions could include leveraging the center as part of a talent management strategy (*see Chapter 4*) and continuing to align training opportunities with business needs, including safety training which is an ongoing focus of the industry.
- ✓ Other studies. Recommendations from the port-related studies conducted in conjunction with this work should be incorporated into the economic strategies of regional organizations.

### Truck transportation

The Purchase Region has a strong concentration of truck drivers relative to national average. Even with the growth in freight rail (*next page*) and the sluggish economy, demand for truck drivers at the national level is expected to increase.

#### Challenges:

- ✓ Fuel. Fuel costs are a tremendous factor for this industry, although they are sometimes passed to customers via a fuel surcharge. Small carriers are most vulnerable to volatility as they are less likely to be able to negotiate bulk contracts. Federal targets related to the use of alternative fuels are also problematic for the industry as they are not yet comparable to diesel in terms of cost and efficiency.
- ✓ Information technology. Sophisticated information technology tools are used industry-wide to analyze routes, track freight movement, and meet extensive



record-keeping requirements. These tools have resulted in savings due to increased productivity and improved inventory control. However, their use requires specialized training for workers and continued investment in the latest technology, both of which can translate to significant up-front costs.

#### Opportunities:

- ✓ Transportation improvements. The completion of I-69 would change the landscape for truck transportation in the region. The completion of the bridge redevelopment project will have a significant impact as well by facilitating access to other parts of the state. Tracking progress on these projects should be part of a transportation & warehousing strategy. (*Both projects are discussed in greater detail in Chapter 4.*)
- ✓ Port capacity. As the capacity of the regional ports expands, demand for trucking and logistics services will increase.



- ✓ Refrigerated storage. Energy costs are an important input for cold storage facilities. Kentucky's relative advantage could make the state and the Purchase Region an attractive location for this industry. The region's access to multiple states could be an advantage.
- ✓ Records storage. This is an important and growing segment of the logistics industry. The Purchase Region's experience handling data transactions for the banking industry suggests the region could be a fit for this type of activity.

### Freight rail

Dubbed the "rail renaissance," the US has seen strong growth in freight rail despite the economic slow-down. This growth has been prompted by a number of factors, including rising fuel costs, increasing demand for commodities, increasing container traffic, and technological

improvements. According to the Federal Railroad Administration, freight rail transportation is expected to increase nearly 90 percent by 2035 over 2007 levels.

### Challenges:

- ✓ Population. While the region has access to a number of major metropolitan areas, lack of a large population concentration within the region itself makes it less attractive for major logistics developments. This is particularly true for intermodal facilities. These mega-projects, which are designed to handle the transfer of goods between two or more modes of transport, have been experiencing significant growth in recent years. However, much of this growth is occurring on the outskirts of major metropolitan areas like Chicago, Dallas, San Antonio, Memphis, and Columbus, Ohio.

- ✓ Few development opportunities. The railroad freight industry is highly concentrated. The nation's seven Class I railroads account for 90 percent of the industry's revenue. As a result, major developments are infrequent, creating stiff competition.
- ✓ Rail capacity. As the economy rebounds and the volume of freight picks up, rail lines are expected to be operating at or near capacity. Growing interest in commuter rail lines and renewed calls for high-speed rail could create additional capacity issues.

### Opportunities:

- ✓ Fuel costs. Although gas prices have held fairly steady in recent months, costs are expected to rise slowly as the supply tightens over time. Rising prices may be unwelcome from the perspective of the consumer. However, for the rail industry, rising gas costs help drive demand for the movement of freight by means other than trucking. Rail freight is a prime beneficiary of this demand.
- ✓ Congestion. There are signs that railroads are looking to bypass highly congested areas, most notably Chicago. In early 2011, CSX will open an intermodal facility in Baltimore, Ohio (approximately 30 miles outside Columbus). The move is expected to improve reliability and reduce transit times.
- ✓ Multi-modal access. While the region does not have a concentrated population base, it is readily





accessible to multiple transportation modes — the Mississippi River system (which includes the Mississippi River and connecting waterways such as the Tennessee-Tombigbee Waterway, the Illinois Waterway, and the Gulf Intracoastal Waterway), the interstate highway system (via I-24), and the nation’s Class I railroads. On the latter point, Western Kentucky is proximate to every one of the seven Class I lines operating in the US.

## Agriculture

While the agriculture, forestry, and fishing sector makes up a relatively small share of the region’s total employment, it has a long-standing part in the regional economy. Crops grown in the region include corn, soy, wheat, and tobacco. The Purchase Region also has a significant number of poultry operations due to the presence Pilgrims Pride in Mayfield and Tyson in nearby Union, Tennessee.

### Challenges:

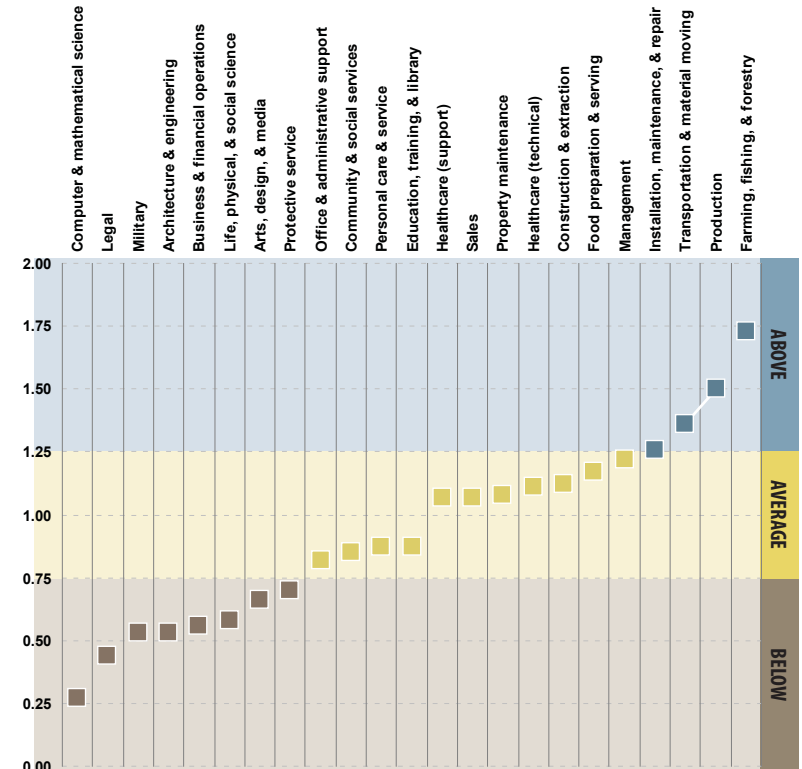
- ✓ **Volatility.** Two of the primary inputs for the agriculture industry — energy and corn — are among the most volatile components of the national economy. While the price of crude oil has remained fairly steady in recent months, any rise in costs can have a dramatic effect for crop producers since petroleum products are both a source of fuel for farm equipment and an important feedstock for things like fertilizer and pesticides. Corn prices can have similar impacts on the bottom line for animal producers since animal feed is among the largest costs for this industry.

- ✓ **Regulation.** Agricultural producers are subject to a number of regulations at the federal, state, and local level. These include environmental regulations relating to the control of waste products (manure), food safety and labeling regulations, and worker safety.
- ✓ **Land planning.** Despite the fact that much of the region remains rural in nature, agricultural uses can still complicate land use planning. These complications can arise in the form of competing uses (as communities seek additional land for housing or industrial development) and conflicting uses (as residential and commercial development moves closer to agricultural operations).
- ✓ **Global trade.** Agricultural producers are highly impacted by global markets. Competition from imports can affect prices and US and foreign trade policies (including tariffs, quotas, and bans, such as the European Union ban on genetically modified foods) can dramatically impact access to markets.

### Opportunities:

- ✓ **Consumer trends.** There are significant trends in consumer preferences that are driving the market for agricultural products. These include

**Figure 2.4 | Purchase Region occupation concentrations (LQs\*)**  
 US average = 1.00



Source: EMSI, Spring 2010 forecast. \*See Figure 2.1 for explanation of location quotients.

**Figure 2.5 | Value of sales by commodity group (\$1,000)****2007 Census of Agriculture**

	<b>Ballard</b>	<b>Calloway</b>	<b>Carlisle</b>	<b>Fulton</b>	<b>Graves</b>	<b>Hickman</b>	<b>Marshall</b>	<b>McCracken</b>
Grains, oilseeds, dry beans, and dry peas	24,003	19,966	21,938	26,057	39,881	37,576	6,116	11,448
Tobacco	606	12,662	2,211	-	14,457	261	925	395
Cotton and cottonseed	-	-	-	-	-	-	-	-
Vegetables, melons, potatoes, and sweet potatoes	29	(D)	(D)	(D)	(D)	-	111	869
Fruits, tree nuts, and berries	9	(D)	(D)	40	(D)	(D)	13	(D)
Nursery, greenhouse, floriculture, and sod	47	631	61	-	355	(D)	739	1,831
Cut Christmas trees and short rotation woody crops	-	-	-	-	(D)	-	-	(D)
Other crops and hay	420	(D)	249	(D)	1,034	77	523	313
Poultry and eggs	31,527	30,512	16,595	11,035	173,036	93,414	13,548	3,351
Cattle and calves	1,979	3,451	1,306	230	11,218	936	6,477	1,712
Milk and other dairy products from cows	737	373	1,145	-	1,837	(D)	237	(D)
Hogs and pigs	837	218	4,739	24	(D)	(D)	(D)	(D)
Sheep, goats, and their products	24	(D)	70	(D)	32	9	60	21
Horses, ponies, mules, burros, and donkeys	185	688	(D)	(D)	637	69	(D)	379
Aquaculture	-	(D)	(D)	-	(D)	39	-	-
Other animals and other animal products	1	(D)	1	-	18	(D)	(D)	2

SOURCE: US Department of Agriculture, National Agricultural Statistics Service. (D) Cannot be disclosed.

consumer interest in foods that are prepared naturally (organic produce, free-range chickens, antibiotic-free meats and dairy products), as well as those that meet certain health or dietary needs (gluten-free products, low-fat foods). Capitalizing on these trends can help local producers increase their market share.

- ✓ **International.** As the standard of living around the world rises, global demand for US agricultural products has increased. The US is currently a net exporter of chicken, pork, and beef, although beef sales are continually threatened by fears of bovine spongiform encephalopathy (BSE). Helping connect producers with export markets should be part of this strategy.
- ✓ **Energy efficiency.** Farm and ranch operations are the target of a number of energy efficiency initiatives, such as the 2010 ARRA On-farm Energy Efficiency & Production Incentives Program which will make more than \$600,000 available to reimburse farmers for eligible costs. Although this program is no longer accepting applications, it illustrates state and federal interest in meeting energy goals by working with agricultural producers, benefiting both parties.
- ✓ **Energy crops.** While growth in the biofuels industry has not kept up with expectations, the potential for commercial energy crops remains. Opportunities include switchgrass and sorghum, as well as woody crops, such as poplar and willow. (See *energy discussion in Chapter 3.*)



- ✓ Waste-to-energy. Waste-to-energy plants use manure and other agricultural by-products in the production of energy. These systems have the potential for meeting on-site energy needs while addressing an environmental challenge at the same time. Bioenergy pilot- and demonstration-scale projects recently funded by the Department of Energy include initiatives that use agricultural residues, such as plant and animal oils to produce biofuels. If successful, these projects could create commercial markets for agricultural waste in the future.
- ✓ Sustainable farming. Driven by changing consumer preferences and concern about environmental degradation, there is a growing interest in sustainable farming. This concept is built on the idea that growing genetically diverse agricultural products helps reduce vulnerability of the food supply and contributes to more varied diet. Though it still represents only a small fraction of agricultural production, heirloom crops and heritage livestock are experiencing a resurgence. Also included in this idea is the breeding and marketing of alternative or unusual livestock (such as bison or emu) and growth in related fields, such as the sale of heirloom or organic seeds.
- ✓ Local food movement. As consumers search for ways to lessen their environmental footprint and support local economies, interest has grown in the local food or “locavore” movement. Impacts of this trend nationally can be seen in the explosion of farmers markets, the prevalence of “buy local” campaigns, and the number of restaurants featuring locally grown products.

Even major retailers have positioned themselves to take advantage of this wave. Wal-Mart’s Heritage Agriculture program, which seeks to purchase crops from farmers within one-day’s drive of the company’s warehouses, is an example. Linking local producers with these opportunities should be considered.

- ✓ Tobacco. Tobacco, particularly dark tobacco, continues to be an important crop for Western Kentucky. Although the US has seen a decrease in cigarette smoking, overseas markets have grown steadily. In addition, domestic sales of smokeless tobacco and cigars are increasing. As a result, this traditional crop is likely to continue to be part of the regional landscape.
- ✓ Aquaculture. Kentucky aquaculture products range from freshwater shrimp (prawns) and crayfish to aquatic plants to a wide range of fish species, includ-

ing trout, bass, and tilapia. Associated opportunities that can help diversify income streams include recreational fishing (opening ponds to the public for fee-based fishing) and converting wastes to energy. Kentucky’s cooperative extension system has aquaculture specialists that should be consulted as part of the formulation of an agricultural strategy for the region.

- ✓ Agritourism. Agritourism can take a number of forms from the most basic “pick-your-own” approach to more complex operations involving lodging and historical re-enactments. For some producers, agritourism represents a source of supplementary income, while others have seen this side of the business completely supplant their original operation. Helping interested producers leverage available agritourism programs and marketing resources should be consid-



**Figure 2.6 | US healthcare employment**

**Employment by industry segment**

2008 and projected change, 2008-18

Industry segment	2008 Employment	2008-18 % change
<b>Healthcare, total</b>	<b>14,336.0</b>	<b>22.5</b>
Hospitals, public and private	5,667.2	10.1
Nursing and residential care facilities	3,008.0	21.2
Offices of physicians	2,265.7	34.1
Home healthcare services	958.0	46.1
Offices of dentists	818.8	28.5
Offices of other health practitioners	628.8	41.3
Outpatient care centers	532.5	38.6
Other ambulatory health-care services	238.5	6.8
Medical and diagnostic laboratories	218.5	39.8

SOURCE: US Bureau of Labor Statistics, *National Employment Matrix, 2008-18*

ered as part of an agriculture strategy. For example, the “Farms Are Fun” website operated by the Kentucky Department of Agriculture lists only three agritourism sites in the eight-county Purchase Region.

## Healthcare

With the continued loss of jobs in traditional sectors like manufacturing, communities are becoming more reliant on the healthcare industry as a source of employment and tax revenue. In addition, the industry includes many occupations that offer relatively high wages and abundant career-ladder opportunities. Along with its direct economic benefits, access to healthcare has become an important quality of life asset. The presence of medical facilities, both primary care and emergency care, has become a factor in location decisions for companies, workers, and retirees.

The dramatic growth of the US healthcare industry has been driven by long-term demographic and economic trends, most notably the aging of the baby boomers. We are only at the beginning of a trend that will continue to play out over the next several decades as the last of the boomers will reach retirement age in 2030.

Other factors behind the expansion of healthcare-related industries include:

- long-term use of prescription drugs, such as statins and antidepressants,
- growing reliance on medical testing, like MRIs and CT scans,

- increasing rates of chronic disease, such as heart disease and diabetes,
- advances in biotech and genetic research (personalized medicine),
- and the impact of federal policies, such as tying the use of electronic medical records to Medicaid requirements.

***Challenges:***

- ✓ Aging population. The share of the Purchase Region’s population that is over 65 years of age is expected to increase significantly in the coming decades. Keeping service levels in line with this growth could be a challenge for area service providers.
- ✓ Talent. Professionals interviewed in connection with this work listed recruiting healthcare workers to the region as a challenge. In addition, the aging of workers has been cited as a challenge nationally. This has been particularly true of nursing as a large share of the profession nears retirement age. According to the 2008 National Sample Survey of Registered Nurses released in September 2010 by the federal Division of Nursing, the average age of the registered nurse population in 2008 was 46 years of age, up from 45.2 in 2000.
- ✓ Healthcare reform. Passage of the Patient Protection and Affordable Care Act of 2010 will result in significant changes to the way healthcare is deliv-





ered in the US. Major elements of the bill include health insurance mandates for individuals and employers, changes to Medicaid eligibility standards, and greater emphasis on tracking patient outcomes to name a few. Implementing the law's many provisions will present both challenges and opportunities for related industry sectors.

### **Opportunities:**

- ✓ **Medical devices and supplies.** The US market for medical devices and supplies is approximately \$75 billion. This sector comprises a range of products, including medical and surgical instruments (such as syringes and catheters) and surgical appliances and supplies (such as sutures and orthopedic devices), as well as ophthalmological and dental equipment and supplies. With the aging of the baby boomers, the demographics are favorable for long-term growth. Technological and scientific advances are also expected to spur continued expansion in the sector. Furthermore, the sector is somewhat less affected by economic cycles due the fact that consumers' use of the products are typically dictated by medical necessity. Firms in this sector are typically highly regulated, which could be a good fit with the Purchase Region's experienced production and nuclear workers.
- ✓ **Electronic medical records.** Like many sectors, healthcare is undergoing a profound transition through the increased use of information technology to improve efficiencies in services and

treatment of disease. The US lags behind other countries in the use of health information technology, or HIT, which encompasses a range of products and services from patient records to scheduling to managing imaging and testing results. Recent efforts to curtail rising expenses (including the health insurance reform bill) are expected to increase the demand for HIT-related products and services, particularly electronic medical records (EMR). The region's experience providing back office functions for the banking industry could be an advantage.

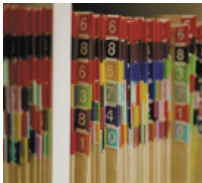
- ✓ **Pharmaceutical manufacturing and distribution.** Despite job losses in the industry, the market for prescription drugs is likely to expand. In addition to factors that affect healthcare generally (such as aging population and a increasing incidence of chronic diseases), pharmaceutical manufacturing growth will be fueled by rapid expansion in the use of generic drugs, rising international demand, and the growing overlap between pharmaceutical preparations and biotech. The initial phases of drug development require access to research facilities and venture capital funding. As a result, these activities tend to cluster around major research universities and population centers. Once a drug is through the long development phase, however, factors affecting location decisions tend to be more in-line with traditional criteria, such as lower costs, quality workforce, and access to markets. The Purchase Region offers experience working in regulated



environments, as well as logistics experience which may be an advantage for this industry.

- ✓ Nuclear medicine. In addition to the area's seven hospitals, one significant asset that should be considered when thinking about healthcare and medical-related opportunities for the region is the presence of the Paducah Gaseous Diffusion Plant and the Honeywell Uranium Conversion Facility in nearby Metropolis, Illinois. At first glance, the connection may be less than obvious, however, the presence of these facilities brings several advantages. First, PGDP and Honeywell workers have direct experience handling radiologic materials. Isotopes are used in an increasing number of medical procedures as well as being used to irradiate medical supplies to reduce bacterial levels. In addition to their direct experience handling nuclear materials, the PGDP/Honeywell workforce brings an understanding of what it means to work in a highly regulated environment. This could present an advantage for fields like pharmaceutical

manufacturing or medical device manufacturing which must conform with Food & Drug Administration regulations. ■



# 3: Emerging Opportunities

An economic sector strategy must go beyond reinforcing existing industries. National trends, coupled with existing assets, suggest a number of opportunities for growth in the region.

We do not suggest these strategies lightly, however. Pursuit of the opportunities outlined here will require a level of effort beyond that needed to strengthen and enhance current sectors. Some targets are aspirational, in that they would help push the region beyond its current capacities (energy). Others are more readily achievable with existing assets, but will require a coordinated approach in order to achieve significant impact (tourism).

While the level of effort is high, so is the potential payoff. Progress in each of these areas has the potential to have a transformational effect on the Purchase Region economy.

## Energy

Many of the region's manufacturers are reliant on abundant sources of low cost energy. As a result, the pursuit of energy-related opportunities offers both a potential source of new employment and a path for helping to keep the region's energy cost low for existing employers. While Kentucky has limited potential for many renewable energy technologies — wind, solar, and geothermal — there are a number of other energy-related options for the Purchase

Region to pursue, including coal-related technologies, biomass and biofuels production, and nuclear.

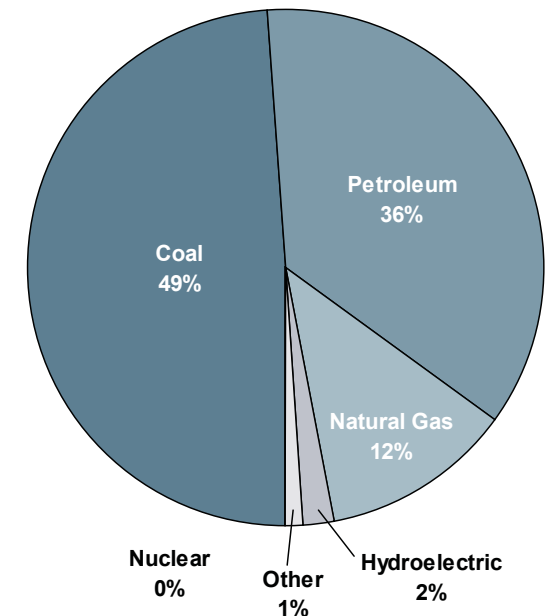
Growing concern about the negative externalities associated with oil production, including climate change, environmental degradation and national security, have made energy a topic of increasing interest to federal authorities. As a result, federal investments in alternative energy and government mandates, such as Renewable Fuels Standards (RFS), are likely to continue to drive energy-related developments in the near term.

### Intelligent choices

States are also taking a more active role, and Kentucky is no exception. Governor Beshear's has made energy independence an important piece of his agenda. The Governor's November 2008 energy strategy, *Intelligent Energy Choices for Kentucky's Future*, identified seven strategies that are helping to shape the direction of state policies and incentives:

- ❶ **Strategy 1:** Improve the energy efficiency of Kentucky's homes, buildings, industries, and transportation fleet.
- ❷ **Strategy 2:** Increase Kentucky's use of renewable energy.
- ❸ **Strategy 3:** Sustainably grow Kentucky's production of biofuels.

**Figure 3.1 | Kentucky's Energy Consumption by Source, 2005**



*Non-renewables dominate Kentucky's energy consumption and production. Coal, natural gas, and petroleum currently account for 97 percent of the state's total energy consumption*

SOURCE: Energy Information Administration, as published in *Intelligent Energy Choices for Kentucky's Future*, November 2008



*Relying on coal-fired power generation in the state will not be sufficient to support Kentucky's coal industry if other states cease purchase of Kentucky coal. By diversifying the coal industry's product line into transportation fuels and synthetic natural gas, we support our efforts to become less vulnerable to imports and ensure a continued market for Kentucky coal, sustaining the 17,000 plus jobs in the coal industry, as well as the industry's other economic effects.*

*Intelligent Energy Choices for Kentucky's Future  
Governor Steven L. Beshear, November 2008*

- **Strategy 4:** Develop a coal-to-liquids industry in Kentucky to replace petroleum-based liquids.
- **Strategy 5:** Implement a major and comprehensive effort to increase gas supplies, including coal-to-gas in Kentucky.
- **Strategy 6:** Initiate aggressive carbon capture/sequestration (CCS) projects for coal-generated electricity in Kentucky.
- **Strategy 7:** Examine the use of nuclear power for electricity generation in Kentucky.

#### Site Bank

In response to state legislation, including the Kentucky Energy Security and National Leadership Act (HB 299), the state's Office of Energy Policy was directed to "develop and implement a strategy for production of transportation fuels and synthetic natural gas from fossil energy and biomass resources" As part of its work, state officials developed a site evaluation process, known as the "Site Bank." The site bank process was intended to identify potential sites for coal-to-liquids/coal-to-gas (CTL/CTG) facilities. Over a two-year period, 41 sites throughout the state were evaluated to determine if they could meet minimum daily level of output, (established at 10,000 barrels per day in liquid fuels, or the equivalent of thousands of cubic feet per day of pipeline quality synthetic natural gas) and whether the sites exhibited any "fatal flaws" for energy production. Several of the sites identified in the process have attracted the interest of developers.

Results for 40 sites were summarized in *Kentucky Alternative Energy Site Bank Evaluation*, a report released by the Kentucky Department of Energy Development and Independence in June 2009. Results for an additional site, the Paducah Area Community Reuse Organization (PACRO) site, were not included in the summary report, but were published separately and are available on the website created for the site bank process.

In addition to evaluating CTL/CTG opportunities, sites were also scored on their suitability for biomass, nuclear, wind, and solar projects. A number of sites received favorable scores on CTL/CTG and biomass criteria, which are similar. Of the 40 sites, thirteen scored above 85 percent of the maximum possible score for CTG/CTL production; nearly half of the sites received scores of 75 percent or better for biomass.

Because of the state's climate and weather patterns which tend to diffuse solar rays, commercial-scale solar facilities were not deemed a viable option for any of the sites. None of the sites received the required level of solar insolation (at least 6.75 kWh/m<sup>2</sup>/day) to make its use cost-effective. The evaluation process found similar issues with wind power. None of the sites passed the "fatal flaw" test of an average wind speed of 5.6 meters per second resulting in a zero score for suitability for wind projects. While technological advances may make commercial applications of wind and solar more viable in the future, neither was seen as a cost-effective option for the evaluated sites at this time.





Five Purchase Region sites were evaluated under the site bank process. **Figure 3.2** provides an overview of the scores received by each site on the various technologies. Generally speaking the region's sites fared well, however, lack of an adequate surface water supply negatively impacted the Purchase Region Industrial Park's (PRP) suitability for energy projects, which frequently have major water needs. Seismic risks were associated with each property, negatively impacting scores for all five sites, particularly with regard to prospects for nuclear power facilities. The two Marshall County sites were one of a handful of sites in the state mentioned as possibilities for "energy farms" — sites that could support development of more than one technology.

Additional information about potential energy options for the region are discussed below.

### Coal-related technologies

Although the technologies are not new, current trends are heightening interest in coal-to-liquids (CTL) and coal-to-gas (CTG) technologies. Kentucky's long history of investment in coal production make these technologies a natural starting point for discussion of energy alternatives. As the nation's third largest coal-producing state (behind Wyoming and West Virginia), the Commonwealth also has an interest in maintaining market share.

The state plan sets a goal of creating a CTL industry that consumes 50 million tons of coal per year in the production of four billion gallons of liquid fuel per year by 2025. For CTG, the goal is to produce a sufficient volume of synthetic natural gas (SNG) that when combined with in-

state production would meet all of the state's natural gas needs; Kentucky currently imports 56 percent of its annual requirements.

However, the state faces some challenges to moving forward with either CTG or CTL facilities. Both industries are vulnerable to fluctuating prices for oil and natural gas (which make the added cost less attractive) and to the prospect of increased regulation of carbon emissions. According to a June 2009 report by the Mountain Association for Community Economic Development (*The Economics of Coal in Kentucky: Current Impacts and Future Prospects*), even with the use of available carbon capture and storage technologies, the process of converting coal to liquid fuels would produce more pollution than gasoline. The report points to lower costs for production associated with CTG compared with CTL, but cites lack of experience (the US has only one CTG plant) and understated carbon storage costs as potential problems. In addition, the authors point out that a long lead time — an estimated seven years before a plant could be brought online — make it likely that there would be additional regulation of carbon emissions prior to production.

According to the Site Bank evaluation process, factors affecting the siting of CTL/CTG plants include access to feedstocks, the availability of sufficient acreage, and potential for on-site carbon storage. Water availability is also critical, with facilities requiring a minimum of 2,500 gallons per minute consistently available. With the exception of the Purchase Region Industrial Park, the region's sites were deemed "ideally suited" for development of CTG/CTL facilities, with the other four sites receiving 79 percent or

**Figure 3.2 | Energy project suitability scores**  
*Evaluations of selected Purchase Region sites*

Figure represents % of total points awarded


Site County	Acres	Score (%)			
		Biomass	Nuclear	CTG/CTL	Solar
<b>Bailey Port</b> Marshall	650	76	55	82	55
<b>Marshall County Industrial Park</b> Marshall	736	75	59	80	50
<b>PACRO site</b> McCracken	562	83	70	79	59
<b>Purchase Region Industrial Park</b> Graves	2,000	66	0	69	39
<b>TVA Hickman</b> Fulton	841	75	51	80	46

SOURCE: Results for sites in Fulton, Graves, and Marshall Counties are from *Kentucky Alternative Energy Site Bank Evaluation*, June 2009. Results for the Paducah Area Community Reuse Organization (PACRO) site in McCracken County were published separately. All site bank evaluations were prepared by Smith Management Group of Lexington, Kentucky for the Kentucky Energy and Environment Cabinet, Department of Energy Development and Independence. Additional details about each site are available at <http://www.emcilink.com/sitebank/>

NOTE: Sites were also evaluated for wind, but were awarded zero points, since none passed the "fatal flaw" test of having an average wind speed of 5.6 meters/second.

**Figure 3.4 | The Wide World of Biofuels**

*Published in August 2006, this table provides a solid overview of the industry*

Fuel	Source	Benefits	
Grain/Sugar Ethanol	Corn, sorghum, and sugarcane	<ul style="list-style-type: none"> <li>Produces a high-octane fuel for gasoline blends</li> <li>Made from a widely available renewable resource</li> </ul>	 <p>Most Mature</p> <p>Least Mature</p>
Biodiesel	Vegetable oils, fats, and greases	<ul style="list-style-type: none"> <li>Reduces emissions</li> <li>Increases diesel fuel lubricity</li> </ul>	
Green Diesel and Gasoline	Oils and fats, blended with crude oil	<ul style="list-style-type: none"> <li>Offer a superior feedstock for refineries</li> <li>Are low-sulfur fuels</li> </ul>	
Cellulosic Ethanol	Grasses, wood chips, and agricultural residues	<ul style="list-style-type: none"> <li>Produces a high-octane fuel for gasoline blends</li> <li>Is the only viable scenario to replace 30% of US petroleum use</li> </ul>	
Butanol	Corn, sorghum, wheat, and sugarcane	<ul style="list-style-type: none"> <li>Offers a low-volatility, high energy-density, water-tolerant alternate fuel</li> </ul>	
Pyrolysis Liquids	Any lignocellulosic biomass	<ul style="list-style-type: none"> <li>Offer refinery feedstocks, fuel oils, and a future source of aromatics or phenols</li> </ul>	
Syngas Liquids	Various biomass as well as fossil fuel sources	<ul style="list-style-type: none"> <li>Can integrate biomass sources with fossil fuel sources</li> <li>Produce high-quality diesel or gasoline</li> </ul>	
Diesel/Jet Fuel From Algae	Microalgae grown in aquaculture systems	<ul style="list-style-type: none"> <li>Offer a high yield per acre and an aquaculture source of biofuels</li> <li>Could be employed for CO2 capture and reuse</li> </ul>	
Hydrocarbons From Biomass	Biomass carbohydrates	<ul style="list-style-type: none"> <li>Could generate synthetic gasoline, diesel fuel, and other petroleum products</li> </ul>	

more of the available score. Proximity to coal supplies, an ample supply of surface water (rivers), the lack of a non-attainment area in the Purchase Region, and transportation access, including barge and rail transport, were identified as positives for the region with regard to this technology. The Bailey Port site scored slightly higher presumably due to coal-related activities already present on the site.

**Biomass**

Growth of biomass and biofuels production in the US has been dogged by concerns about costs and emissions associated with production, geopolitical issues created by the conversion of food sources to fuel, fluctuating prices for gasoline (in the case of biofuels production), and competition from cheaper sources of electric power generation (for biomass). The Purchase Region is well aware of the industry’s changing fortunes. In 2007, the Calvert City Riverport was announced as the site of a planned \$319 million ethanol-biodiesel plant. However, like such plants around the country, this project and others planned for the region, has yet to materialize.

As defined in Kentucky statute, biomass resources refers to a range of organic materials, including agricultural products (such as switchgrass and miscanthus), wood and wood products, aquatic plants, fats and oils, animal by-products, manure, and some municipal wastes.

To understand the issues affecting the production and use of biomass resources, the Governor’s Office of Agricultural Policy and the Energy and Environment Cabinet formed the Executive Task Force on Biomass and Biofuels Development in Kentucky. Charged with facilitating

Source: “From Biomass to Biofuels,” National Renewable Energy Laboratory, August 2006

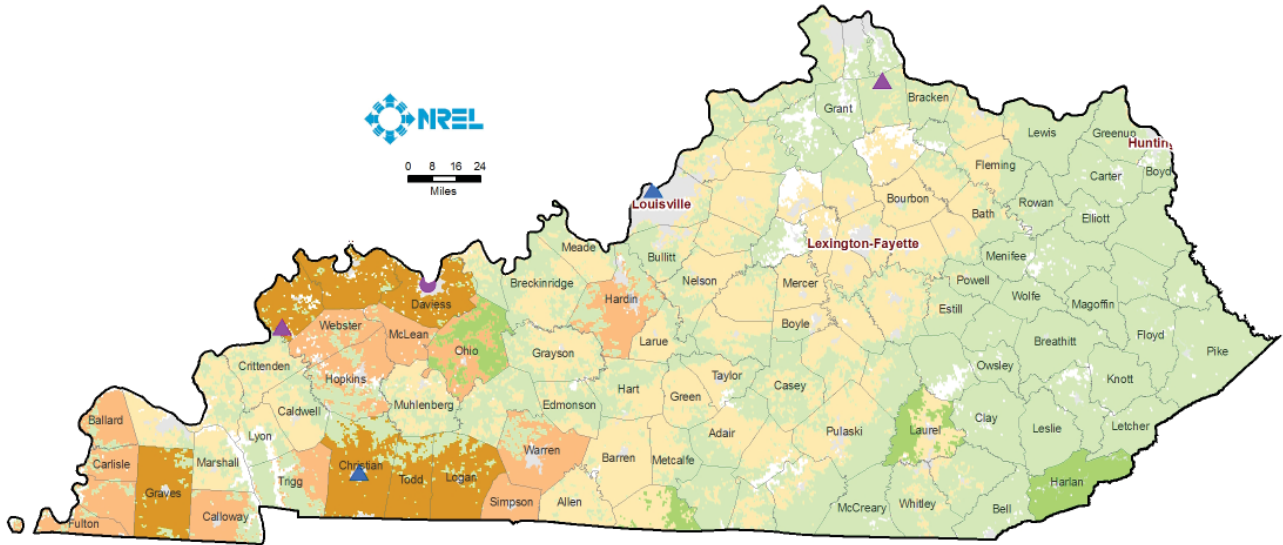


the development of “a sustainable biomass and biofuels industry in Kentucky that will generate prosperity in a carbon-constrained environment, and revitalize rural Kentucky by creating new jobs and strengthening local economies,” the task force issued a report in December 2009 on the state of the industry. Their report points to a number of factors that are likely to change the equation for bioenergy moving forward.

These factors include expansion of the federally mandated Renewable Fuels Standard (RFS) and similar standards set by states. Kentuckians already use fuel containing 10 percent biofuels as a result of the RFS, although only about one-quarter of these fuels are produced in-state. Over roughly the next decade, rising thresholds mandated by the RFS will raise the state’s demand for biofuels from 150 million gallons to 775 million gallons per year, requiring 14 new biofuels plants to be built in the state, according to the task force. Additional production will have to be derived from sources other than food, since current usage already meets federal limits for production from food crops. Developing non-food sources must be a priority for the state or Kentucky will be forced to import fuels to meet the RFS.

Federal mandates are also expected to spur demand for biomass generation. Renewable Portfolio Standards (RPS), which establish renewable goals for electric power generation, have been adopted by a number of states and the federal government. Given the state’s limitation for other renewables like solar and wind power, biomass is likely to be an important focus of efforts to meet the standards. As with biofuels, if the state is unable to meet renewable energy targets using state-produced sources,

Figure 3.5 | Kentucky Biomass Potential by County



LEGEND

Biomass (Thousand T/year/county)		0	1-100	100-250	250-500	>500
Crops and Crop Residues		[White Box]	[Light Yellow Box]	[Orange Box]	[Dark Orange Box]	[Red Box]
Forest and Primary Mill Residues		[White Box]	[Light Green Box]	[Medium Green Box]	[Dark Green Box]	[Dark Green Box]
Urban Wood and Secondary Mill Residues		[White Box]	[Light Gray Box]	[Medium Gray Box]	[Dark Gray Box]	[Dark Gray Box]

Facilities	Active	Under Construction	States
Ethanol Biorefinery	▲	●	—
Biodiesel Production Facility	▲	●	—
			COUNTIES
			URBAN AREAS

SOURCE: State Assessment for Biomass Resources: Kentucky Potential Biofuel Production, an interactive website developed by the US Department of Energy’s Alternative Fuels & Advanced Vehicles Data Center (<http://www.afdc.energy.gov/afdc/sabre/sabre.php?state=kentucky>)

energy demands will have to be met by out-of-state resources. In addition to lost opportunities for economic growth, competition for external renewable sources is likely to drive up the cost of electricity in the state.

One factor that hampers the growth of bioenergy industries is the low mass-to-volume ratio of inputs. In other words, transportation of biomass feedstocks take up a large amount of space relative to the density of energy they provide. Pelletization — a process that transforms feedstocks by shredding, drying, or otherwise “densifying” the material — would make transportation less costly, increasing the competitiveness of biomass and biofuels facilities.

*Fifteen to twenty trucks of chopped switchgrass or logging residue are needed to deliver as much feedstock energy to a power plant as a single truckload of coal. Baling, chipping, or pelleting biomass increases its density two to eight-fold, but even in its most concentrated forms, biomass has half the energy density of the fossil fuels that currently supply most of our energy.*

*Final Report From the Executive Task Force on Biomass and Biofuels Development in Kentucky, December 10, 2009*

The Purchase Region is relatively well-positioned for biomass production. In the Site Bank evaluation process, the quantity of available biomass boosted scores for the potential for a biomass facility in the region. The region’s strong industrial base (representing potential feedstocks), variety of transportation options (highway, rail, and barge), and available land were identified as potential assets for biomass. Of the five sites, the PACRO site scored the highest with 83 percent of the maximum available points.

### Shale gas

Countries around the globe are looking to largely untapped supplies of “unconventional” natural gas as the solution to future energy needs. Unlike conventional gas supplies, which are typically found in pockets making recovery relatively easy, unconventional gas deposits are trapped within impermeable or semipermeable structures and dispersed across wide basins. Until very recently, drilling technology was inadequate to make pursuit of unconventional supplies financially feasible. Improvements in drilling techniques, most notably the use of hydraulic fracturing (or fracing) and horizontal drilling, have made recovery of unconventional supplies more attractive. Fracing uses water or a mixture of sand and water to create artificial fractures in the rock, releasing the trapped gas.

In the US these unconventional supplies, often contained in shale formations, are thought to be sufficient to provide cheap and abundant power for nearly a century at current rates of gas consumption. Unconventional gas offers other advantages beyond being plentiful. These include the potential to significantly reduce carbon emissions relative to other fossil fuels and the ability to avoid the political

turmoil and security issues associated with much of the world’s conventional supplies.

Pursuit of unconventional or shale gas is not without its problems, however. The fracing technique commonly used to extract unconventional gas deposits requires large quantities of water and creates similar volumes of wastewater. In addition to concerns about demands that shale gas extraction would place on water supplies, the number of chemicals used in the drilling process (including bactericides and surfactants) has raised fears about the potential for groundwater contamination. Proponents counter that drilling takes place well below the water table making contamination unlikely. The Environmental Protection Agency is scheduled to complete a study on the impact of hydraulic fracturing in 2012.

The Kentucky Geological Survey estimates the state’s conventional natural gas deposits total roughly 12 trillion cubic feet (tcf). Unconventional or “speculative” deposits, are estimated to be as much as 114 tcf, with the potential for another 0.848 tcf in methane coal beds. While production levels of conventional gas have typically been low, the state saw significant increases in production between 2001 and 2006 in response to rising natural gas prices.

The bulk of Kentucky’s deposits are located in the Devonian Shale formation covering much of Eastern Kentucky and parts of Tennessee, Ohio, and West Virginia. However, there is growing interest in the New Albany Shale formation, which includes portions of Western Kentucky. Evaluations conducted as part of the Site Bank process suggest the region’s geologic assets may not currently warrant explora-





tion. However, price increases and continued advancement in drilling and recovery techniques could change this situation in the future.

### Carbon Sequestration

Carbon capture and storage (CCS), or carbon sequestration, is being looked at as a possible means for both decreasing carbon emissions and increasing gas yields. CCS plays a complementary role in the production of a number of the energy sources discussed here, including CTG/CTL, shale gas, and potentially, biomass.

The Kentucky Consortium for Carbon Storage (KCCS) is a research group formed to investigate and demonstrate carbon sequestration opportunities in Kentucky. As part of a pilot project, the KCCS evaluated the potential for carbon storage at a well in Hancock County. Preliminary findings from this work suggest that portions of Western Kentucky offer excellent opportunities for CCS facilities.

Findings from the Site Bank process suggest more information will be needed to evaluate the Purchase Region's opportunity for CCS. As part of the Site Bank review sites were evaluated on geologic criteria affecting CCS potential, including:

- Proximity to "target" geologic formations, such as active oil fields, deep saline formations, underground coal mines, and limestone quarries.
- Potential negative aspects of these target formations, including their structure, depth, and level of penetration

from oil and gas exploration (the number of boreholes, seismic lines and other drilling -related activity).

- Location in an area with a higher than average earthquake potential.

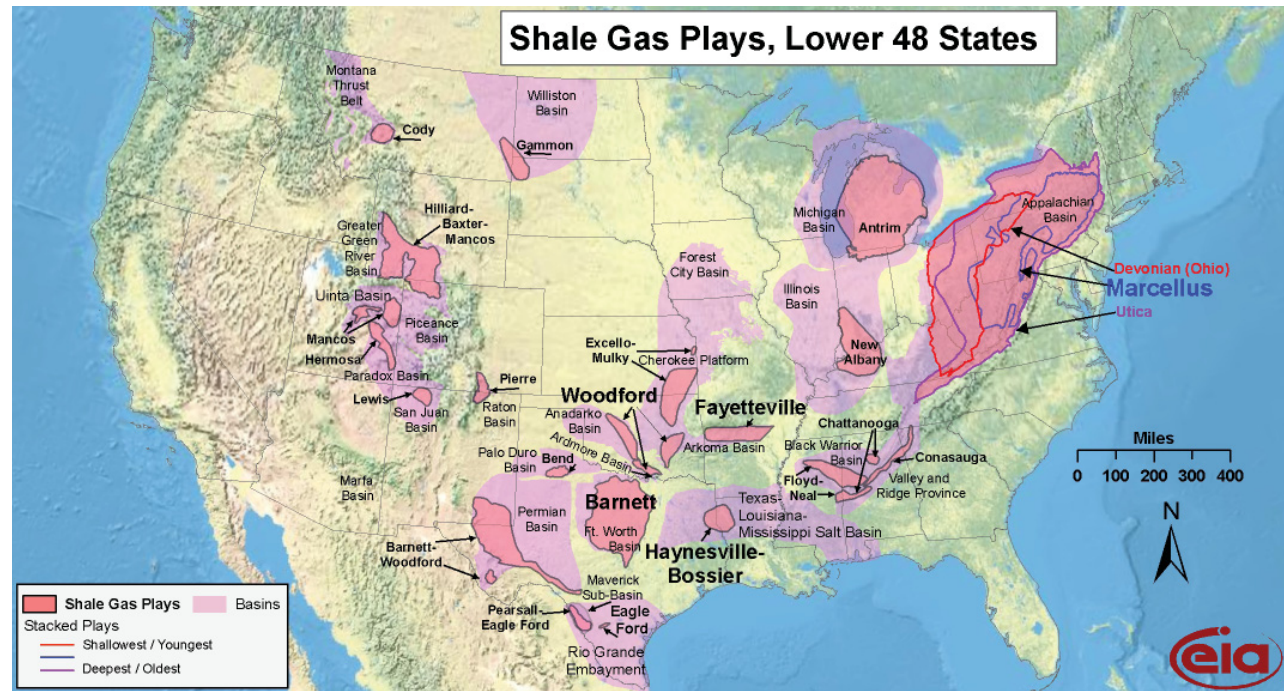
The five Purchase Region sites did not score favorably relative to other sites in the state on these criteria, making prospects for CCS less clear. Lack of strong prospects for carbon storage may hamper efforts to site energy projects in the region. However, the Site Bank evaluations were lim-

ited to the five sites and the area within a 5-, 10-, 15-, or 20-mile radius depending upon the aspect being evaluated. Discussions with the Kentucky Geological Survey should be undertaken to determine if other locations within the Purchase Region might be suitable for this use.

### Nuclear

Concerns about the environmental and geopolitical implications of our dependence on fossil fuel have reignited America's nuclear debate. These factors, along with recent volatility in energy prices and passage of the federal

Figure 3.6 | Shale Gas Plays in the Continental US



SOURCE Energy Information Agency based on data from various published studies. Updated March 10, 2010.

Energy Policy Act of 2005, (which included provisions favorable to nuclear power generation), have prompted a flood of commercial nuclear reactor permitting activity after nearly three decades without a single application. According to the US Energy Information Administration, 20 projects at various stages of permitting were on file with the Nuclear Regulatory Commission as of February 17, 2009.

Nuclear power currently supplies one-fifth of the total US electric power market. While there are a myriad of issues associated with its use, supporters point to its relatively low cost, reliability, and positive impact on carbon emissions (nuclear generation is considered emission-free). Despite Kentucky's decades-old moratorium on the construction of nuclear power plants, *Intelligent Energy*



*Choices* calls for the state to examine the use of nuclear power in meeting the state's future energy needs.

Even if the state moratorium were lifted, existing fault lines, most notably the New Madrid Fault, appear to be a limiting factor for siting a nuclear reactor in the Purchase Region. However, the presence of a uranium enrichment facility in Paducah (the Paducah Gaseous Diffusion Plant or PGDP) and a uranium conversion facility in Metropolis, Illinois (Honeywell), helps mitigate this concern to some extent.

With both facilities having been in operation since the 1950s, the region's workforce has more than a half century of experience in meeting stringent federal requirements for handling nuclear materials. In addition to creating a workforce experienced in working with radiological materials, the presence of these plants reflects a demonstrated ability to work in the highly regulated environment these facilities entail, and perhaps most importantly, a population that is comfortable with nuclear issues.

While a nuclear reactor may not be a feasible target, activities associated with the growth of nuclear power in the US could represent an opportunity for the Purchase Region, particularly the PACRO site. The region's experiences with the PGDP and Honeywell could provide a competitive advantage for activities such as spent fuel recycling. Monitoring state and federal progress on this issue should be part of a regional energy strategy, along with establishing partnerships with relevant organizations.

### Hydrokinetic

Hydroelectric sources supplied approximately 6 percent of the nation's energy needs in 2008. Existing projects are concentrated in a handful of states and typically generate power from water flowing through turbines in man-made dams. It is also possible to create hydroelectric power by harnessing the flow of waterways with strong natural currents, such as the Mississippi River. The availability of inexpensive and abundant power from other sources (namely coal), combined with an prohibitively expensive application process, has meant little or no exploration of hydrokinetic power on a commercial scale.

One company currently exploring this form of energy is Massachusetts-based Free Flow Power. The company is studying the feasibility of hydrokinetic generation at a number of sites in the Mississippi River Basin, including three sites in the Purchase Region. Its proprietary turbine technology is designed to be attached to bridge abutments to generate power from the river's current as it flows through. The company is currently pursuing licensing and study requirements with the Federal Energy Regulatory Commission and the Army Corps of Engineers licenses, according to the company's Proposed Study Plan dated August 28, 2009.

There are concerns with this technology, including the potential for negative effects on the river's fish and plant life. Furthermore, hydrokinetic generation is not likely to replace coal or even to compete with other alternatives. However, regional leaders should monitor progress on the work of Free Flow Power and other similar initiatives as part of a regional energy strategy.

## Energy Efficiency

Energy efficiency continues to be an important focus of federal, state, and local initiatives and plays a major role in decreasing energy demand. The focus of these efforts has primarily been retrofitting existing homes, creating more efficient products and construction techniques for new buildings, and modernizing the nation's energy transmission systems (using smart-grid technology).

While these activities are likely to spur demand for more energy-efficient products nationwide, the Purchase Region's existing manufacturing base does not suggest immediate opportunities for capturing investment in this area. However, federal investment in particular will create employment opportunities for people with skills related to home energy installation and maintenance, green building techniques, and electrical maintenance and engineering. Ensuring that workers are prepared to capitalize on green jobs should be part of the regional energy strategy. Current initiatives, such as the State Energy Sector Partnership (SESP), a \$4.7 million dollar grant to train displaced workers that includes Fulton County and the regional energy sector training grants relating to energy efficiency (*see box*), should be leveraged.

## Environmental Sciences

While not strictly limited to energy, the presence of the PGDP and Honeywell has provided the region with a pool of specialists in technical and regulatory issues surrounding natural resource management, pollution control, and waste management and remediation.

This field includes a range of services, such as

- ✓ assessing the environmental condition of a particular site,
- ✓ cleaning up polluted sites or dealing with hazardous spills,
- ✓ preparing management strategies for a particular natural resource, such as a wetlands area,
- ✓ conducting an audit of an organization's environmental impact, such as its carbon emissions, and
- ✓ addressing waste management needs.

Demand for these services is largely driven by government policy. As a result, work flow tends to be highly impacted by changes to existing regulations. Although federal climate-change and alternative energy legislation is currently stalled, public pressure (spurred in part by this summer's massive Gulf oil spill) is expected to continue to keep the subject in the spotlight. International demand for waste management and environmental impact work is also increasing as countries like China address environmental concerns.

## Tourism

Tourism has become an important strategy for economies faced with the decline of manufacturing and other traditional industries. Despite the prevalence of low-wage jobs, tourism can provide a number of economic benefits. In addition to drawing dollars into the region, a well-coordinated tourism strategy can raise the profile of a region, change perceptions of an area (both internal and external),

### State Energy Sector Partnership Training Grants

Strong partnerships between the West Kentucky Workforce Investment Board (WKWIB), the West Kentucky Community & Technical College (WKCTC), and local labor organizations have resulted in the award of two major training grants that will support energy efficiency activities in the region.

***Energy Sector Training.*** In cooperation with the Plumbers & Steamfitters Local Union 184, WKWIB will partner with WKCTC to provide training focused on green awareness, sustainable technologies installation, and energy efficiency in residential, business, and industry construction. The project aligns with the Kentucky Energy Plan goal of initiating strong education and outreach programs in support of energy efficiency. Participants will be drawn from Plumbers & Steamfitters's apprenticeship program and existing membership, as well as a limited number of students enrolled in WKCTC's heating, air conditioning, and ventilation (HVAC) program. The project also includes funding for two "coaches" to assist green entrepreneurs.

***Green Systems Awareness Program.*** This program, developed by the United Association of Journeymen and Apprentices, has achieved certification from the US Green Building Council. Under the initiative, WKCTC will offer training on the installation of the following green systems: basic wind power; plumbing systems (e.g., low water, grey water, solar water heaters, pressure assisted); and HVAC systems (e.g., solar heating, solar photovoltaic, geothermal, high efficient gas). Training will be provided to existing union members and a limited number of HVAC students using equipment funded through this grant. The training will prepare students to take a national union certification exam.





*"I can see Kentucky doing something with bourbon the way Scotland has played off scotch—or any wine region for that matter. Kentucky has charm, bourbon, and horses. What more does it need? Good marketing."*

*"133 Places Rated: North America"  
National Geographic Traveler,*

and introduce people to the region who may later become residents or business owners.

The Purchase Region has a number of tourism assets which have been largely underutilized. These assets cover a broad spectrum from outdoor and recreational activities to heritage tourism opportunities; from arts and cultural attractions to family and educational assets. A regional approach to tourism could draw on the natural beauty, history and culture of each Purchase-area community to create a destination that appeals to a wide range of visitors. However, a successful tourism strategy will require a concerted effort.

### Regional Inventory

Documenting regional assets and devising a strategy for marketing them is the first step in leveraging tourism for economic development. This step should include cataloging existing tourism sites and organizations, as well as identifying potential target audiences and marketing channels. Where possible, the inventory should include visitor data or other indicators of economic impact. For example, according to an August 2007 study conducted by the University of Tennessee, more than 900,000 people visited the Reelfoot Lake area in 2005, spending an estimated \$21.8 million within 30 miles of the lake. While these figures are not specific to Kentucky, it helps document the value of the asset to the area.

The state's tourism marketing website provides a starting point for this strategy. However, this effort should also extend to identifying special interest sites where particular categories of assets could be marketed. Examples of

categories to be considered in this strategy are provided below.

- ***Outdoor recreation.*** A number of counties in the region offer exceptional outdoor recreation activities. Visitors to the Purchase Region can enjoy camping and a variety of outdoor sports at the Land Between the Lakes Recreational Area (Calloway County) and Kenlake State Resort Park (Marshall County); plan cycling routes along the Great River Road (Fulton, Carlisle, and Hickman counties); as well as take advantage of numerous locations for hunting and fishing including the region's many wildlife management areas. While these sites are well promoted on state agency sites, ensuring they are featured by national associations for outdoor sports enthusiasts could draw a new set of visitors to the region.
- ***Birding.*** Within the category of outdoor activities, bird watching merits special attention because of its avid following. According to an analysis of the economics of birdwatching prepared by the US Fish & Wildlife Service, 18 million Americans participated in birdwatching away from home in 2000. The Reelfoot National Wildlife Refuge ranks among the top spots in the nation for birding. Ensuring that visitors are aware of other opportunities within the region could help extend their stay.
- ***Historic tourism.*** The Purchase Region has played a unique role in American history, starting with the actual land purchase for which it is named. As a result, there are numerous opportunities for heritage tourism in the region. From the Indian burial site at Wickliffe Mounds (Ballard County), to Columbus-Belmont State Park, the





site of a Civil War battle known as the “Gibraltar of the West” (Hickman County), to unusual sites like the Woolridge Monuments in Mayfield (Graves County) and the historic architecture of the region, visitors who want to learn more about Kentucky’s role in the nation’s history can find many sites to enjoy in the Purchase Region. Working with historical societies to designate historic sites or have them listed on the National Register of Historic Places and designated as a Kentucky Archaeological Landmark would make them easier for history-minded tourists to find. Capitalizing on public interest surrounding the anniversaries of pivotal dates in history should be part of this strategy. Examples include the Civil War sesquicentennial (2011) and the 200-year anniversaries of the New Madrid earthquakes (2011-2012) and the Jackson Purchase itself (2016-2018).

- ***Arts and literature.*** In addition to its historical figures, Western Kentucky has links to art and literature. Paducah’s Artist Relocation Program has become a national model for using the arts for economic development. Leveraging the city’s reputation as a destination for artists could bring visitors to the region. Building on historical figures with ties to the area should be part of this strategy as well. For example, the river counties could capitalize on the association of Mark Twain with the Mississippi River more than they currently do, as his work is so strongly associated with that landscape.
- ***Quilting.*** Like birders, quilting enthusiasts are a segment of the population worth targeting individually. The presence of the National Quilt Society Museum in Paducah has put the region on the map for this group.

The American Quilters Society (AQS) Quilt Show & Contest is an international quilting event that draws at least 37,000 people to town, with an estimate impact of \$20 million according to the AQS. “Quilt Trails” provide another mechanism for drawing this group to the area. Originated in 1989 with the painting of an 8’ by 8’ quilt square on the side of an Ohio barn, these geo-based trails have gained interest as a means for promoting rural tourism. The National Quilt Museum has added a square to the outside of its building as part of a quilt trail project. In addition, the Kentucky Geography Network lists two “quilt barns” in Marshall County. Making sure these and other quilt-related resources can be easily identified by a web search could help extend the reach of quilting tourism throughout the year and the region.

- ***Festivals and events.*** Unique cultural events also shape the fabric of the counties of Western Kentucky. The Big Singing, an all-day sing-along program of gospel music (Marshall County), the Hot August Blues and Barbecue Festival, and the Kentucky Lake Bluegrass Festival held at Kenlake State Resort Park (Marshall County), as well as the well-known Fancy Farm Picnic all showcase local food and culture and could be promoted to encourage visitors to come to Kentucky during certain times of the year. Fulton County will soon have the Jamieson distillery to link the west to the rest of the ‘Bourbon Trail,’ as well. Partnering with hotels and restaurants in the region (and beyond it) to showcase local culture will engage residents of the Purchase Region, as well as visitors from outside the area.

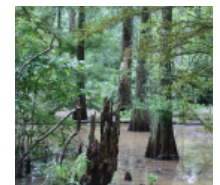
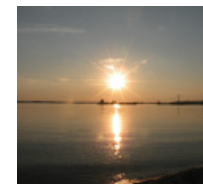
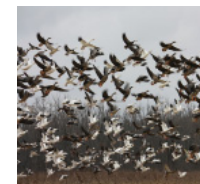
## Linking Strategies

Tourism programs that design and market a series of sights connected to one another as an integrated route, part of a larger trip, or thematically are excellent opportunities to highlight lesser-known destinations in an area. By linking destinations to one another, visitors are presented with a menu of options—rather than a set itinerary—and are more likely to be drawn to the area. Rather than branding the region with a single identity, marketing strategies should help potential tourists envision themselves enjoying a range of hobbies and interests in the Purchase Region.

The Purchase Region has an opportunity to build upon existing tourism assets related to hunting, watersport, and quilting. The region is well-poised to attract adventure travelers by highlighting the variety of outdoor sports opportunities in the region, lure RV tourists with maps of scenic driving routes and camping locations, and engage families and retirees interested in American history. The following are examples for marketing tourism holistically with a wide range of audiences in mind.

### ● ***Road Trips & Tourism Routes.***

Road trips appeal to retirees, RV enthusiasts, families, and adventure travelers equally, if for different reasons. Scenic drives through the Kentucky countryside



**Figure 3.7 | Top 10 International Markets (US)**  
**2009 Visitation (Arrivals) and Spending**

Country	Rank	Arrivals	Rank	Spending
Canada	1	17.96 M	1	\$16.2 B
Mexico	2	13.16 M	4	\$8.3 B
United Kingdom	3	3.90 M	3	\$12.1 B
Japan	4	2.92 M	2	\$12.9 B
Germany	5	1.69 M	5	\$5.6 B
France	6	1.20 M	7	\$4.2 B
Brazil	7	893,000	6	\$4.2 B
Italy	8	753,000	—	—
South Korea	9	744,000	—	—
Australia	10	724,000	10	\$3.3 B
India	—	—	8	\$3.6 B
China	—	—	9	\$3.5 B

SOURCE: US Department of Commerce, International Trade Administration Office of Travel and Tourism Industries.

present a unique opportunity to showcase the region's physical beauty, as well as highlight many sites of interest along the way.

The Great River Road, as designated by the National Scenic Byways Program, runs through the ten states that border the Mississippi, including Kentucky. The program's website ([www.byways.org](http://www.byways.org)) highlights a variety of routes and thematic tours along the Great River Road, including a day trip through western Kentucky that links Paducah, Wickliffe Mounds State Park, Fort Jefferson, and Columbus-Belmont State Park to one another.

Companies like All Getaways also market and sell route maps such as "The Land Between the Lakes: The Best of the Western Water Lands" and other scenic drives. National Geographic Traveler creates routes for travelers and can serve as an example for future local marketing efforts. Expanding on their bourbon trail guide or creating a similar guide with features unique to western Kentucky could provide a significant marketing opportunity.

Tying the region to well-known images of Kentucky can also raise awareness. In a ranking of "133 Places Rated: North America" by the same publication, Kentucky Bluegrass Country scored 66. One quote from this article demonstrates Kentucky's draw and highlights the importance of marketing:

*"I can see Kentucky doing something with bourbon the way Scotland has played off scotch—or any wine region for that matter. Kentucky has charm, bourbon, and horses. What more does it need? Good marketing."*

In addition to its travel routes and best places rankings, National Geographic also offers a family vacation planner of Kentucky and walking tours of many cities, such as Chicago's Magnificent Mile.

Free, well-designed driving and walking tours will make the region more accessible to visitors and will give them a wide range of activities to sample. The Kentucky state tourism website currently lists three 'tours, trails, and byways' in the Western Waterways region. These selections should be expanded to better highlight the unique attractions of the western part of the state.

- **Day and Weekend Trips.** Big cities in the region will always draw tourists more easily than lesser-known rural communities. The unique assets offered by the Kentucky countryside, however, can provide a short-term reprieve for locals or tourists in neighboring cities. The Purchase area should market itself in Chicago, St. Louis, Indianapolis, Nashville, Memphis, Louisville, and Lexington. The proximity of these cities make them convenient sources of potential tourists and could lead to repeat visitors who find a favorite hiking trail, hunting spot, or state park resort in the area.
- **Travel by Theme.** The "travel by theme" trend is evident in recent travel profiles in the *New York Times* and other publications. Articles such as: "Twisting Roads Take You To the Heart of Appalachia," "Bourbon and Bluegrass," and "Louisville Weekend" demonstrate the rugged appeal of the state for tourists, all drawn to the area for different activities. "My Old Kentucky Ham," an article detailing the culinary traditions of Tennessee and



Kentucky, was published in *T Magazine* in May 2010. The Purchase Region can highlight its own offerings thematically, thus connecting itself to well-known routes through the state and giving visitors a chance to stumble upon experiences they weren't seeking-out, but were happy to 'discover.'

Adventure travel lends itself well to day or weekend excursions. Western Kentucky is particularly well-suited for a variety of outdoor adventures. Tours like Kentucky's Bluegrass Country Biker on Adventure Finder are an excellent example of how an interest like cycling can introduce a tourist to other regional assets. Creating and marketing similar trails in western Kentucky could attract new visitors to the area who otherwise might not have considered a trip to Kentucky. The map of trails available on the state tourism site is a helpful starting point for visitors interested in equine, ATV, motorcycle, bicycle, and hiking trails across the state. Expanding upon this map to include information about water sports, rock climbing, and camping sites would appeal to a wider range of visitors. Highlighting recreation opportunities at local and

regional parks would also create more opportunities for tourism in western Kentucky.

Historical tours are a natural fit for the Purchase Region, with its many historic Indian sites, deep Civil War heritage, and proliferation of historic settlements and railroad towns. The state map of historic sites, parks, and resort parks is a good starting point for tourists, but does not suggest specific places to eat, routes to follow, trails to hike, or routes to structure a visit. The Civil War Heritage Map available on the state tourism site is very detailed, but could enhance its story-telling through historic routes, and could connect Civil War attractions to other local offerings, such as fantastic bar-b-que, a unique music venue, or a fun cycling trail. By contextualizing each site, visitors are drawn to the area by their initial interest (cycling, Indian history, or the Civil War) and linger to sample other offerings.

- ***International tourists.*** One group worth considering in the preparation of a regional tourism strategy are international tourists. Rates of international travel have seen double-digit growth in 2010 over prior years

according to the International Trade Administration's Office of Travel and Tourism Industries. Efforts like "Visit Kentucky USA," a cooperative marketing initiative comprised of representatives from the Kentucky Department of Travel and convention and visitors bureaus from the northern part of the state, can help raise awareness about Kentucky as a destination for international visitors. Focusing outreach efforts on key countries, such as Canada could be part of this strategy.

Along with documenting assets and linking marketing strategies, communities must make an honest appraisal of potential challenges and liabilities. Local alcohol access laws are one example of an issue that could impact tourism. Another issue already mentioned is the lack of lodging facilities in the region. While this represents somewhat of a "chicken or the egg" situation — you need lodging to have visitors and visitors to have lodging — continuing to draw attention to the issue and to promote available facilities will be a necessary element of success.



Infrastructure is also intricately linked to the success of a tourism strategy; inaccessible communities are not attractive destinations. Communities should consider signage, gateways to the community, retail mix and critical mass, as well as building facades and streetscapes when developing a tourism strategy. Tourists are drawn to communities that offer a mix of attractions and quality amenities. They need quick and easy access to visitor information when planning their trip and a welcoming atmosphere during their stay to ensure that they enjoy their visit and recommend the destination to other travelers.

## Entrepreneurship

Entrepreneurship has become an essential tool in the economic development toolbox. Especially in rural areas, communities are recognizing that a “grow your own” strategy has a higher probability of success than recruiting a major employer to the area. In addition, entrepreneurship strategies that foster new business and job creation are often more cost effective than incentives paid to recruit businesses to a community. An April 2008 study by the Appalachian Regional Commission’s Entrepreneurship Ini-

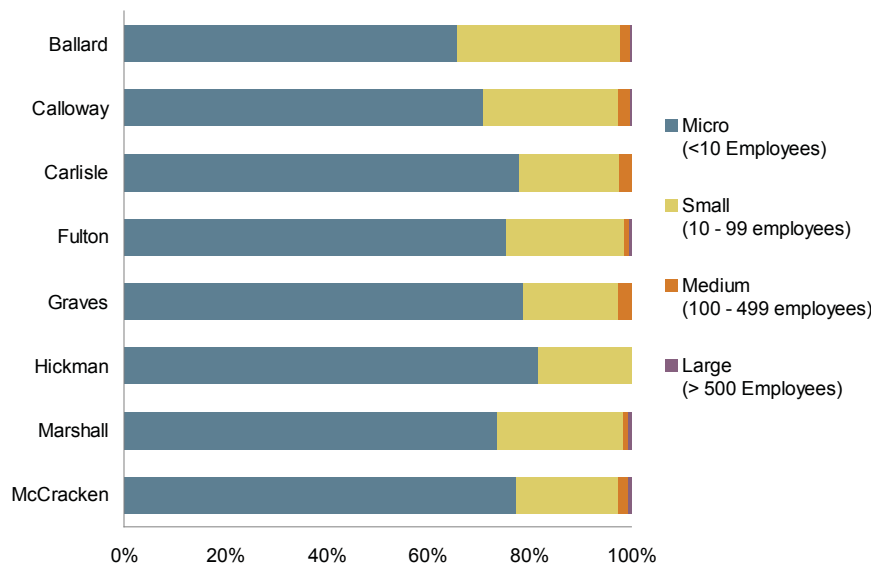
tiative found the public cost of the initiative per job created ranged from \$579 to \$3,994, well below similar per job statistics for large-scale business attraction efforts.

A review of the region’s establishments by firm size reveals that the vast majority of companies in the area are small and micro businesses (**Figure 3.8**). Stabilizing and supporting these small businesses’ growth can greatly enhance a region’s economic growth and job creation.

Understanding business churn — the rate of company births, deaths, expansions, and contractions — is also a factor in understanding the region’s entrepreneurial climate. **Figure 3.9** shows a snapshot of business churn in the region. Over 10 percent of the total number of establishments in the period analyzed were new businesses. Continuing to enhance the region’s small business support system can help strengthen start-ups, reduce the number of deaths and contractions, and help position the region for stronger economic growth.

**Figure 3.8 | Business Type by Firm Size**

Number of Employees, 2007



*The majority of Purchase Region establishments fall into the micro category, with fewer than 10 employees.*

*Only a very small percentage of firms employ 100 or more people.*

*Stabilizing and supporting these small businesses’ growth can greatly enhance a region’s economic growth and job creation.*

## Resources

The Purchase Region has access to a fairly comprehensive set of support services for entrepreneurs and small business owners. This support network provides services to meet the needs of a range of entrepreneurial talent, from mom and pop business to high-growth, technology based companies. **Figure 3.10** illustrates the entrepreneurship resources active in each of the region’s eight counties.

**Figure 3.11** provides a map of the region’s entrepreneurial ecosystem by the type of service rendered.

SOURCE: US Census Bureau, County Business Patterns





The state of Kentucky has embraced an entrepreneurship strategy and has set up a statewide network of services aimed at supporting entrepreneurs with technology-based businesses. State-level support is provided through the Kentucky Science and Technology Corporation's network of Innovation and Commercialization Centers (ICCs). The Western Region ICC is headquartered in Murray at Murray State University's Regional Business and Innovation Center (MSRBIC) and has a satellite office in Paducah that is run by EntrePaducah.

The service area of the Western Region ICC covers all eight counties in the Purchase Region. The ICC offices in the Purchase Region support technology-based entrepreneurs by providing one-on-one counseling tailored to the needs of each client. This assistance can include such services as prototype development, intellectual property planning, market research, business and financial planning, and capital assistance. In addition, the Western Region ICC in partnership with Murray State manages a 23,000 square foot business incubator to provide entrepreneurs with access to affordable, quality office space.

The state has also set up funds to provide access to capital for innovative businesses across the state. These funds include:

- The Kentucky Enterprise Fund
- The Rural Innovation Fund
- Kentucky New Energy Ventures
- High-Tech Investment Pools
- Common Wealth Seed Capital

These funding sources provide entrepreneurs in the region with equity capital and non-bank financing, which can be crucial to the survival of early stage companies.

The Murray / Paducah Small Business Development Center (SBDC) is part of the US Small Business Administration's national network of technical assistance providers. The Murray SBDC is housed in the MSBRIC's business incubator. Most of the assistance the SBDC provides is in the form of one-on-one counseling for topics including business planning, market research, feasibility studies, and market development. It also specializes in turn-around management. The SBDC offers training programs as well,

including a 12-week business planning course and topical seminars. In addition, it partners with local chambers to offer a small business academy that consists of six to ten different sessions.

Purchase Area SCORE (Service Core of Retired Executives) is the local chapter of a national association that is a resource partner of the US Small Business Administration. SCORE volunteers provide free business counseling and teach workshops targeted to start-up and existing businesses. However, the Purchase Area chapter is currently not very active and struggling to find volunteers to staff its office.

### Figure 3.9 | A Snapshot of Purchase Region Business Churn

Establishment Births, Deaths, Expansions, Contractions, and Constants, 2005-2006

County	Births	Deaths	Expansions	Contractions	Constants
Ballard	17	26	33	39	55
Calloway	76	67	231	186	261
Carlisle	7	7	15	18	26
Fulton	13	29	37	41	55
Graves	68	71	205	156	245
Hickman	3	6	17	21	32
Marshall	49	51	171	152	224
McCracken	158	169	586	581	689
<b>Region Total</b>	<b>624</b>	<b>683</b>	<b>2,004</b>	<b>1,807</b>	<b>2,485</b>

SOURCE: US Census Bureau, Business Information Tracking Series.

The Purchase Area Development District’s Business Lending and Development Services Department also provides businesses in the region with access to non-bank financing. The department provides direct loans and loan packaging assistance to small business owners in the eight-county region.

EntrePaducah is a non-profit organization that provides technical assistance to small business owners and entrepreneurs in McCracken County. It employs three “concierges” that provide one-on-one counseling to clients.

It also hosts educational and networking workshops for entrepreneurs. In addition to providing direct assistance to entrepreneurs and small business owners, EntrePaducah has created working groups to address barriers to entrepreneurship in the area and foster a more entrepreneurial climate in general.

These small business resources are supported by the region’s higher education institutions which provide existing and aspiring business owners with formal and more-intensive training in business administration and management.

During the 2007-2008 academic year, these institutions graduated just over 1,000 students in business-related fields (Figure 3.12).

### Strengthening Connections

Continuing to improve the region’s entrepreneurship resources should be part of the economic sector strategy.

❶ ***Extend the “no-wrong-door” support system for business owners across the region.*** The ICC, SBDC, and EntrePaducah have been working closely to define their niches and reduce the duplication of services offered in the region. Because of their efforts, an entrepreneur that seeks assistance from any one of these small business resources can be referred to the provider that best meets his or her needs. This creates a “no-wrong-door” system among the three principal small business resources in the region.

Working closely with bankers, non-bank lenders such as the PADD, chambers, and economic development organizations in addition to the small business resources can extend the reach of the entrepreneurial support system and can ensure the referral network is active and accurate. Holding regular meetings among these participants can facilitate more collaboration on entrepreneurial initiatives and the region. These meetings can be forums for identifying entrepreneurs’ needs, planning workshops and other events, developing outreach strategies, and educating each other on the programs and services each offers.

Figure 3.10 | Purchase Region Entrepreneurship Resources

Service Area (County)	Murray/Paducah SBDC	Western Region ICC	PADD Business Lending & Development Services	EntrePaducah
Ballard	✓	✓	✓	
Calloway	✓	✓	✓	
Carlisle	✓	✓	✓	
Fulton	✓	✓	✓	
Graves	✓	✓	✓	
Hickman	✓	✓	✓	
Marshall	✓	✓	✓	
McCracken	✓	✓	✓	✓
<b>Locations</b>	Murray, Paducah, Hopkinsville, Owensboro	Murray, Paducah	Mayfield	Paducah

SOURCE: Compiled by TIP Strategies



- Enhance access to business support services.*** Entrepreneurs often must seek specialized services such as patent attorneys, prototype design and development, marketing, branding, and advertising assistance, payroll support, etc. However, many of these services are not offered in the Purchase area and entrepreneurs must travel to Louisville or Nashville.

Creating a directory of business service providers within the region and in nearby metropolitan areas can greatly assist entrepreneurs in locating and choosing a quality service provider to meet their needs. Building relationships with service providers in nearby metropolitan areas can help fill in gaps for high-demand programs that are not offered locally. In addition to linking businesses with the services they need, this kind of effort can demonstrate demand for a particular service and provide enough evidence to support the opening of a new office in the region. This idea could be supported further by offer meeting space (donated by a local chamber or other organization) to outside firms who hold regular office hours in the region to encourage their expansion and increase access to those services in the region.

- Provide more training opportunities targeted specifically for aspiring entrepreneurs.*** Currently, the majority of the assistance offered to entrepreneurs and small business owners in the region is one-on-one counseling. All three service providers offer some workshops and training series, but no one is currently offering a business “boot camp.” These boot camps,

Figure 3.11 | Purchase Region Entrepreneurship “Ecosystem”



SOURCE: TIP Strategies, Inc.

Figure 3.12 | Purchase Region Business-Related Offerings

Total Awards/Degrees by CIP Code (2000), Institution and Award Level for First and Second Majors, July 1, 2007 to June 30, 2009

CIP Code (2000)	Description	Murray State University				West Kentucky Community and Technical College			Mid-Continent University		
		Associate's degree	Bachelor's degree	Master's degree	Murray State University Total	Less than 1 year	At least 1, but < 2 years	Associate's degree	West Kentucky Community and Technical College Total	Bachelor's degree	Mid-Continent University Total
52.0101	Business/Commerce, General	3	115	58	176						
52.0201	Business Administration and Management, General		15		15	120	5	16	141	266	266
52.0301	Accounting		48	10	58						
52.0302	Accounting Technology/Technician and Bookkeeping					25	3		28		
52.0401	Administrative Assistant and Secretarial Science, General	2			2						
52.0402	Executive Assistant/Executive Secretary					226	62	26	314		
52.0801	Finance, General		21		21						
52.1003	Organizational Behavior Studies									4	4
52.1101	International Business/Trade/Commerce		5		5						
52.1201	Management Information Systems, General		5		5						
52.1401	Marketing/Marketing Management, General		34		34						
<b>TOTAL BUSINESS-RELATED COMPLETIONS</b>		<b>5</b>	<b>243</b>	<b>68</b>	<b>316</b>	<b>371</b>	<b>70</b>	<b>42</b>	<b>483</b>	<b>270</b>	<b>270</b>

SOURCE: National Center for Education Statistics.

NOTE: Daymar College (Paducah Main) reported one completion during this period—an associates degree in Business Administration and Management, General (CIP 52.0201).





such as FastTrac (created by the Kauffman Foundation) or NxLevel (developed by the University of Colorado at Denver), help entrepreneurs develop their business idea, research and test the market, and better understand how to manage a business. In general, these boot camps better prepare entrepreneurs for starting a business and can improve their chances of success through better business planning.

- **Enhance access to capital.** One need common to entrepreneurs regardless of location is better access to capital. In the Purchase Region, debt financing is readily available for qualified borrowers. However, there is no local source of venture funding. Although there was an informal angel investor network, there has never been a formal angel network created to provide capital for seed stage companies in the region. The ICC is working on formalizing an angel network and is planning to put together a venture fund specifically for local companies. These initiatives will greatly improve local entrepreneurs' access to equity capital.
- **Help foster an entrepreneurial spirit in the region.** Entrepreneurship breeds more entrepreneurship by creating a culture that encourages people to take risks and start their own business ventures. Raising awareness of entrepreneurship and fostering an entrepreneurial spirit from an early age can help encourage a more supportive culture. Profiling successful business owners in local media sources, holding entrepreneurship expos, and encouraging citizens to support local businesses are all actions that can help foster a more entrepreneurial culture. Youth entrepreneurship

programs such as Junior Achievement ([www.ja.org](http://www.ja.org)) or Lemonade Day ([www.lemonadeday.org](http://www.lemonadeday.org)) teach kids entrepreneurial skills from an early age. Such initiatives can be instrumental in building a strong entrepreneurial spirit in a region.

- **Expand availability of entrepreneurial coaches.** As part of the State Energy Sector Partnership training grants described earlier in this chapter, the Purchase Region will receive funding for two entrepreneurial coaches. These coaches will provide technical assistance to “green” entrepreneurs who are looking to start or expand an existing business.

In addition to leveraging this opportunity, regional groups should explore the potential to expand the Kentucky Entrepreneurial Coaches Institute (KECI). This innovative program, founded in 2003 by the College of Agriculture at the University of Kentucky, is designed to promote economic diversification in northeast Kentucky. Since then, the program has expanded into South Central Kentucky as well. Based on discussions with KECI, the Purchase Region leadership should explore the possibility of expanding the program to the region.

Potential steps would include:

- ✓ **Organizing a class of 30 interested individuals.** Under the KECI program, individuals participate in a predetermined number of seminars, as well as travel to observe best practices. Participants in

### **CASE STUDY: Kentucky Entrepreneurial Coaches Institute (KECI)**

In 2003, the College of Agriculture at the University of Kentucky founded the Kentucky Entrepreneurial Coaches Institute to promote economic diversification in Northeastern Kentucky. Since then, the program has expanded into South Central Kentucky as well.

The program trains coaches through an intensive series of seminars and a national education tour. Thirty participants are selected from the pool of applicants to receive a fellowship to attend the institute. These fellowships are funded through the Kentucky Agricultural Development Board.

The Entrepreneurial Coaches are volunteers who work with entrepreneurs. Rather than providing technical assistance, they serve as a resource for entrepreneurs, help them assess their businesses, and assist them in finding the technical support that they need.

The program was named one of the top programs in the nation by the Small Business Administration.

*For more information, visit: <http://www.uky.edu/Ag/CLD/KECI/>*

## OTHER RELEVANT CASE STUDIES

### Case Study: Central Texas Angel Network

The Central Texas Angel Network (CTAN) was founded in 2006 under the leadership of local entrepreneur Jamie Rhodes with support from the Greater Austin Chamber of Commerce. CTAN provides funding from \$200,000 to \$2 million through its network of SEC accredited investors. Each of its investors pay a membership fee to encourage only serious investors to join. The executive director of CTAN carefully screens deals to ensure that high quality, investment-ready deals are presented to the network. In addition, CTAN has created a larger network of other angel investment networks in the state of Texas that it can syndicate its deals to.

*For more information, visit: [www.centralexasangelnetwork.com](http://www.centralexasangelnetwork.com)*

### Case Study: Sam Swope JA BizTown™

This Junior Achievement park in Louisville, Kentucky, is designed to teach upper elementary students the basics of financial literacy and entrepreneurship through a real-world simulation. In BizTown, students create marketing plans, raise capital, and operate businesses selling products to their classmates. The facility hosts up to 12,000 students annually, helping to promote entrepreneurship among youth in the region at a very early age.

*For more information, visit: [www.jaky.org](http://www.jaky.org)*

the program make a two-year commitment back to the region.

- ✓ Offering a four-day seminar to train entrepreneurial coaches. Scaled-down versions of KECI's model are currently being developed for entities outside the organization's service area. Organizing this type of event, coupled with clear expectations and an opportunity for follow-up, could help kick-start entrepreneurship efforts in the region.
- ✓ Integrating KECI's seminars into existing leadership programs. Examples could include working with local chambers and groups such as Leadership Paducah. ■



# 4: Building Blocks

At its most basic level, economic vitality can be boiled down to three essential ingredients:

- the availability of a **talented** workforce,
- a climate that fosters **innovation** and encourages business growth, and
- a quality of **place** that attracts and retains businesses and individuals alike.

The Purchase Region's success in building on existing strengths and capitalizing on emerging opportunities will depend upon the ability of local leaders to strengthen these fundamentals.

## Talent

As waves of the baby boom generation continue to move towards retirement age, the attraction and retention of talent remains a high priority for workforce and economic development professionals. The current economic slowdown may have softened the blow by delaying retirement plans for a share of the workforce. However, the loss of the baby boomers will ultimately be felt not only as loss in numbers, but a loss of knowledge and skill sets.

This issue will be particularly important for the Purchase Region given its age structure (*see Appendix A*). While the number of seniors rises, those under the age of 20

are projected to comprise a decreasing share of the population. As a result, the region's working-age population — those between the ages of 20 and 64 — is unlikely to increase significantly in the coming decades, if at all.

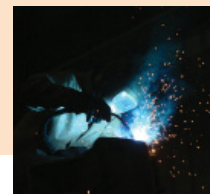
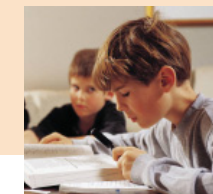
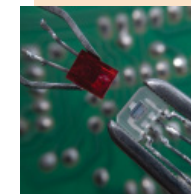
### Key occupations

Purchase Region employers generally praised the region's strong work ethic and low turnover rates. However, the aging of the workforce, difficulties finding and holding on to skilled workers, and a resistance to change were among the workforce challenges cited by firms. Focusing on the development, retention, and attraction of talent will be a critical piece of the region's future economic vitality.

Interviews with local employers identified a number of occupational shortages in the region. While some reported difficulty filling unskilled positions, virtually all reported challenges in the attraction and retention of skilled workers.

Occupations that were identified as "hard to fill" and for which demand is expected to increase in the future include:

- Industrial maintenance and repair
- Engineers, particularly chemical engineers



*The Purchase Region's youth — those under the age of 20 — represent a shrinking share of the population.*

*In 1970, one in every three residents was in this age group. By 2030, they will represent barely one in five.*

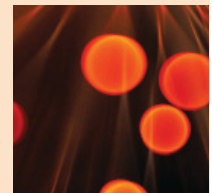
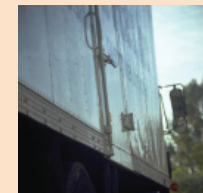
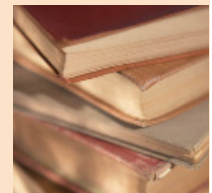


Figure 4.1 | Overview of Selected Manufacturing Occupations

SOC Code	Description	2009 Jobs	Median Hourly Earnings		Relative wages (US = 1.0)	Education Level
			Purchase Region	US		
41-4012	Sales representatives, wholesale and mfg., except technical and scientific products	856	\$20.24	\$24.93	0.81	Moderate-term on-the-job training
51-1011	First-line supervisors/managers of production and operating workers	590	\$24.71	\$24.07	1.03	Work experience in a related field
47-2111	Electricians	571	\$20.76	\$21.91	0.95	Long-term on-the-job training
49-9041	Industrial machinery mechanics	487	\$20.65	\$20.93	0.99	Long-term on-the-job training
51-9061	Inspectors, testers, sorters, samplers, and weighers	259	\$15.41	\$15.13	1.02	Moderate-term on-the-job training
51-8091	Chemical plant and system operators	241	\$28.16	\$25.23	1.12	Long-term on-the-job training
11-3051	Industrial production managers	137	\$42.95	\$39.59	1.08	Work experience in a related field
17-2112	Industrial engineers	104	\$35.07	\$35.37	0.99	Bachelor's degree
17-2041	Chemical engineers	88	\$41.35	\$40.57	1.02	Bachelor's degree
19-4031	Chemical technicians	80	\$29.89	\$20.20	1.48	Associate's degree
51-4011	Computer-controlled machine tool operators, metal and plastic	66	\$14.96	\$16.02	0.93	Moderate-term on-the-job training
49-9043	Maintenance workers, machinery	52	\$17.69	\$17.68	1.00	Short-term on-the-job training
43-5111	Weighers, measurers, checkers, and samplers, recordkeeping	32	\$11.83	\$12.96	0.91	Short-term on-the-job training
17-3026	Industrial engineering technicians	22	\$20.99	\$22.59	0.93	Associate's degree
17-3027	Mechanical engineering technicians	12	\$23.47	\$22.99	1.02	Associate's degree

SOURCES: EMSI, Spring 2010 Forecast; TIP Strategies, Inc.



- Process control workers, instrument technicians
- Supervisors and managers
- Experienced salespeople
- Electricians, including those with locomotive experience
- Diesel mechanics

In addition, basic skills, such as communication skills, leadership qualities, analytical skills, and computer proficiency, continue to be a concern for employers in the region and elsewhere.

Employers have tried to be proactive in addressing these shortages. Several firms reported working with West Kentucky Community & Technical College (WKCTC) to address their recruiting needs. Others actions include designing in-house mentoring programs, expanding the geographic area for recruiting, increasing compensation, establishing relationships with college recruitment offices, using temporary workers, and employing professional recruitment firms (“headhunters”).

With a few exceptions, a comparison of median hourly wages paid in these “hard-to-fill” occupational groups (Figure 4.1) does not show large discrepancies between Purchase Region wages and national pay levels. In fact, some occupations pay far better in the region than they do nationally. According to some employers interviewed for this work, it can be difficult to recruit workers from outside the region because of people’s pre-conceived



notions of the area. Working with local employers and economic developers on strategies for enhancing the image of the region could be an important area of focus for the Purchase Region Area Development District's (Purchase ADD's) economic development initiative.

WKCTC's newly dedicated Emerging Technology Center in Paducah and the Skilled Craft Training Center in Hickory reflect the region's commitment to employer-driven training. The Purchase ADD could continue to support the WKCTC and other postsecondary institutions in this effort by:

1. helping to promote training and education offerings to employers and workers in the region,
2. working with local economic developers to create a formal mechanism for gathering input from employers about workforce needs,
3. providing current data to help create and expand formal career pathways that link workers with high-growth, high-wage occupations, and
4. helping employers identify and access training funds and tax credits at the state and federal level.

### Pipeline

A critical piece of the talent puzzle is understanding the regional "pipeline." The pipeline concept is at the heart of P-16 or P-20 initiatives, which focus on creating a seamless system from pre-school ("P") through postsecondary education (with "P-16" systems including completion of

a four-year degree and "P-20" systems extended through graduate work). A core element of these initiatives is identifying those points at which students are at risk of dropping out of the system. These transition points occur at a number of junctures — middle school to high school, high school to postsecondary education or work, work to continuing education. Smoothing these transitions has been the focus of education and workforce professionals in recent years.

Like most states in the nation, Kentucky's graduation rate calculations have been criticized for overstating performance. A 2006 report by the state auditor's office points to serious concerns about Kentucky's method reporting drop-outs and points to the link between this statistic and published graduation rates:

*In recent years, the education world has been focusing and publicizing the issue of raising the graduation rate instead of discussing lowering the dropout rate. Regardless of the perspective on education goal setting, the two statistics are related, in that dropout numbers are factors for both. If dropouts are generally underreported, then the denominator [of the graduation rate formula] will be smaller than it should be, causing the graduation rate to be higher than it should be.*

The report included an analysis in the decline of membership by grade for selected school years, which is included here as **Figure 4.2** *This analysis cannot be interpreted as a proxy for the state's dropout rate*; class membership can decline for a variety of reasons that would not be

captured even by a state-level analysis. Some students are retained, others may transfer to a private school or to a public school outside the state, or withdraw to be home-schooled or to obtain a GED, or leave the school rolls due to a serious illness or other causes.

However, such data do support the idea that graduation rates must take into account the decline in class size that occurs over a four-year period. A back-of-the-envelope calculation for the Purchase Region's 12 public school districts suggests similar rates of attrition (**Figure 4.3**).

The state's move to the "Transitional Averaged Freshman Graduation Rate" calculation for the 2010-2011 school year should help address this issue. An analysis statewide high school graduation rates prepared by an education policy group found approximately 6 percentage points dif-

*"I liken N.C.L.B. [No Child Left Behind] to a mile race," said Bob Wise, a former West Virginia governor who is president of the Alliance for Excellent Education, a group that seeks to improve schools. "Under N.C.L.B., students are tested rigorously every tenth of a mile. But nobody keeps track as to whether they cross the finish line."*

SOURCE: "States' Data Obscure How Few Finish High School," *New York Times*, March 20, 2008.

**Figure 4.2 | Kentucky Public Schools**  
**Membership Decline Analysis**

Year of Graduation	Class Membership by Grade				Overall Decrease in Membership Over 4 Years
	9th	10th	11th	12th	
2005	53,878	47,743	42,361	39,075	14,803 (27%)
2004	53,687	47,077	42,303	39,025	14,662 (27%)
2003	55,354	47,776	42,278	38,901	16,453 (30%)
2002	54,455	46,783	41,230	37,290	17,165 (32%)

SOURCE: Auditor of Public Accounts, based on information provided by the Kentucky Department of Education, as published in “Kentucky’s Dropout Rate: October 2006- Performance Audit”

*Because Kentucky’s formula for calculating the graduation rate is currently dependent upon the dropout numbers reported by the districts for grades 9-12, the graduation rate has been overstated.*

*Kentucky’s Dropout Rate: October 2006- Performance Audit, Auditor of Public Accounts*

ference between the current rates and rates calculated under the new method. In the most recent year (2007-2008) the state’s published graduation rate was 84.5 percent; using the Transitional AFGR method the policy group’s calculations place the graduation rate at 78.5 percent.

Improving high school graduation rates has been a focus of Governor Beshear’s administration. In September, 2009, the Governor’s office hosted the first Graduate Kentucky Summit. Funded through private sponsors, including America’s Promise Alliance, this statewide summit focused on identifying factors affecting the state’s dropout rate and generating ideas for improving it. The event is being followed up by a series of regional summits, including the West Kentucky Region summit, held in Murray in February 2010. Resources from the Graduate Kentucky initiative are available online at [www.graduate.ky.gov](http://www.graduate.ky.gov).

High school dropout rates have also been the focus of numerous initiatives across the country. A September 2008 *Practice Guide* published by the US Department of Education’s Institute of Education Sciences grouped dropout prevention strategies into six broad recommendations:

- Utilize **data systems** that support a realistic diagnosis of the number of students who drop out and that help identify individual students at high risk of dropping out (*diagnostic*).
- Assign **adult advocates** to students at risk of dropping out (*targeted intervention*).

- Provide academic **support and enrichment** to improve academic performance (*targeted intervention*).
- Implement programs to improve students’ classroom **behavior and social skills** (*targeted intervention*).
- Personalize the **learning environment** and instructional process (*schoolwide intervention*).
- Provide **rigorous and relevant instruction** to better engage students in learning and provide the skills needed to graduate and to serve them after they leave school (*schoolwide intervention*).

One consistent finding of the dropout prevention literature is the importance of early identification of at-risk students. Red flags identified in recent studies include:

- **Behavior.** A 2008 study by the Public Policy Institute of California found passage rates for the state’s exit exam (introduced as a graduation requirement in the state in 2006) could be predicted effectively by the fourth grade. High on the list of indicators of success were elementary math scores and classroom behaviors such as beginning promptly and following instructions. The study’s authors used behavior grades on elementary school report cards to create a “Behavior GPA,” which correlated strongly with passage rates on the exit exam.
- **Attendance.** A July 2007 report published by the Consortium on Chicago School Research at the University



of Chicago (*What Matters for Staying On-Track and Graduating in Chicago Public High Schools*) found a direct correlation between ninth grade attendance rates and high school graduation rates. The study found that students who missed as little as one or two weeks of school per semester faced a “substantially reduced” chance of graduating.

- General performance.** Researchers from a 2005 study by the Philadelphia Education Fund and Johns Hopkins University found that similar indicators – failing scores in math or English, being flagged for bad behavior, and poor attendance – could be used to identify potential dropouts by the sixth grade.

Because of these and other findings, growing emphasis has been placed on easing the transition from elementary to middle school, as this is the point at which a number of these early warning signs come in to play. Strategies for addressing middle school challenges include:

- Accelerated Middle Schools.** A 2008 topic report by the US Department of Education’s What Works Clearinghouse identified Accelerated Middle Schools as one of only a handful of programs that had an impact on selected outcome measures (specifically, staying in school and progressing in school). These programs are designed to help middle school students who are behind grade level catch up with peers in their age group.
- Best practices.** Graduate Kentucky provides a source of best practice research related to improving gradua-

tion rates, including a number of initiatives directed at middle-schoolers.

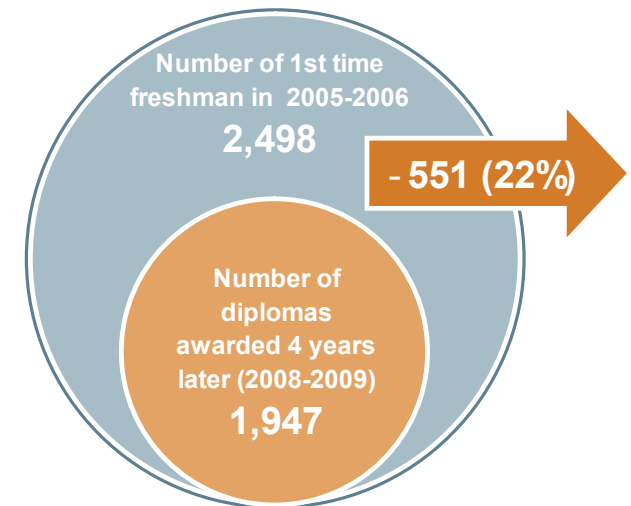
### Talent management

In recent years, human resource practices have shifted from a focus on employee attraction and recruitment strategies to a more comprehensive “talent management” approach. These integrated strategies recognize that the success of organizations is driven by the talent and skills of its employees. As a result, they focus not only on attraction and recruitment, but also on the development and retention of talent. Moreover, talent management strategies are structured around future organizational needs as well as current needs.

Talent management strategies for communities or regions can be approached in much the same way. As in organizations, the talent and skills of residents and workers drive the success of their communities. In broad terms, strategies for the attraction, development, and retention of talent fall into two categories:

- Leveraging existing assets and organizations.** Regional agencies and organizations involved in education and workforce should be actively engaged in attracting new residents to the area and facilitating the integration of these residents to the region. These efforts will ensure a growing talent pool to sustain regional employers and attract new employers. A formalized effort will also stabilize the talent pool by improving the region’s retention rate. In addition, a focus on talent by multiple organizations will help ensure the local labor pool has

**Figure 4.3 | Purchase Region Public Schools**  
One segment of the region’s education pipeline



*SOURCES: Calculations by TIP Strategies based on Non-academic Data published by the Kentucky Department of Education (KDOE). Figures include the 12 public school districts located in the eight-county region.*

*Number of first-time freshman was calculated by applying the published retention rate to the number of 9th grade students reported by KDOE in 2005-06 Growth Factor Ethnic Membership [filename = Growth Factor Ethnic Membership Report 2005-2006 2.2.06.xls]. The retention rate for 2005-2009 was obtained from Retention Rates by School and District (Five year trend, 2009)) [filename = RET0509.xls].*

*Number of diplomas awarded was calculated from KDOE Graduation Rates by District and High School (Five year trend, 2009) [filename = GradRate2005\_2009.xls]. Figures include graduates who received a diploma in 4 years and those with an Individualized Education Program (IEP) that allows for more than 4 years.*

## Talent trends

A number of significant trends influence talent management:

Demographic trends, most notably the aging of the baby boomers, suggest demand for workers may soon outstrip supply. As a result, competition for labor is expected to increase among companies as well as communities. Many industrialized nations (Japan, the United Kingdom, Russia, and Germany) are experiencing a decline in working age population, only exacerbating the issue in the US.

The “next generation” workforce has different expectations for work than previous generations. Often cited attributes of this younger workforce include (1) facility with technology, (2) a desire to do work of social importance, (3) an interest in having “fun” at work, (4) increased interest in work-life balance, and (5) choosing the place they live first, then looking for work.

Rapid advances in communications technology are changing the patterns of how and where people work, creating new opportunities for business startups, and offering new ways to communicate and collaborate. Interactive media tools, such as Linked-in, Facebook, and Twitter are enhancing and creating new opportunities for both business and social networking.

Globalization, most significantly the growth in the BRIC countries (Brazil, Russia, India, and China), is fueling unprecedented demand for resources and talent. The impact of global demand on consumption patterns, commuting patterns, and overall business structures is likely to require communities to re-think how they attract and retain for employers and talent.

access to education programs to develop skills needed to pursue employment in the region.

- ***Supporting the efforts of local employers.*** Increased support for employers is the second part of the talent management framework. This can be accomplished through programs and initiatives designed to foster collaboration among employers, train human resource professionals on effective talent management strategies, and enhance employers’ efforts to recruit, develop, and retain their talent pools. These efforts will help to ensure regional employers’ access to an adequate labor supply, which will in turn, be a powerful business retention tool.

The strategies outlined below will help the Purchase Region more effectively attract, develop, and retain the talent to meet the needs current and future employers. The proposed talent management strategy draws on regional assets including promoting existing initiatives, leveraging regional institutions of higher education, increasing ties to former residents, and capitalizing on tourism flows to the region.

- ***Workforce.*** Forming partnerships among workforce, business, and education should be the focus of a talent management strategy. The Purchase ADD’s Community & Economic Development Committee could provide a forum for discussion. Issues for consideration include:
  - ✓ ***Resources.*** Helping employers and residents learn about and access state and federal workforce resources should be at the core of any talent

management strategy. A web-based map of the region’s education and workforce assets was created as part of the Purchase Future planning process. This mapping process could be extended to other areas of interest based on input from local employers and economic development professionals.

- ✓ ***Marketing.*** The Purchase ADD could serve as the focal point for a talent recruitment campaign. This effort would be designed to 1) help improve the image of the Purchase both inside the state and externally, 2) keep potential employees informed about opportunities in high growth careers in the region, and 3) change attitudes about certain career choices, including manufacturing. Publicizing key assets, such as the Emerging Technology Center, could form the core of this strategy.
- ✓ ***Industry-focused groups.*** Organizing around key industry sectors can help align area resources and provide focus to existing initiatives. This effort should be carried out through existing structures where possible (rather than forming new groups). Work plans would encompass areas such as *training* (e.g., leveraging West Kentucky Community and Technical College in the provision of industry-specific curriculum) and *skills certification* (e.g., creation of a certified skills talent bank to connect companies with prospective employees and vice versa), as well as identifying and monitoring industry-specific *business climate* issues.





- ✓ **Talent magnets.** Innovative programs can raise the profile of a region and help attract and retain talent. Examples of these “magnets” include providing stipends to promising students in engineering and other high-demand fields, creating “forgivable” student loan programs, and hosting design competitions underwritten by local companies. A competition which engages students, engineers, and industrial designers to show how products can be improved can be of immediate value to the companies participating, as well as to those submitting their work.
- ✓ **“Soft skills.”** In addition to the specific occupations listed earlier in this chapter, local employers cited a lack of “soft skills.” While industry-specific skills can sometimes be taught on the job, employers are looking to hire workers who are already proficient in standard skills, such as the ability to understand directions, solve problems, and communicate effectively with others.
- **Higher education.** Local colleges and universities with a presence in the region can participate in a talent management strategy in the following ways:
  - ✓ **Alumni ties.** Maintaining contact with graduates who have left the region is an invaluable part of a talent attraction strategy. Collaborative outreach efforts involving local workforce and economic development professionals should focus on building a network of individuals with connections to the region (see *Extended network*, below).
  - ✓ **Articulation/reciprocity.** Facilitating the transfer of credits between institutions of higher education can bring talent into the region and help advance the skills of existing workers. Cross-state agreements should be considered. Institutions with degree programs in occupations for which the region has shortages (such as engineering) should be a priority.
  - ✓ **Internships and apprenticeships.** These tools have long been vital components of workforce development activities. When incorporated into a larger talent management strategy, internships and apprenticeships can provide other benefits. For example, in addition to providing real-world work experience, connecting students with local companies can help establish ties to the region whether or not the individual remains with the employer. These programs can also provide a mechanism for feedback from local employers about education and training programs. The continued expansion of internship and apprenticeship opportunities in the region should be supported.
  - ✓ **Volunteer opportunities.** Like internships, volunteering can help ensure students have a positive perception of the region and increase loyalty to the area.
  - ✓ **Continuing education.** The ability to access lifelong learning opportunities has been identified as an important factor in retirement decisions.
- ✓ **Conferences & events.** Higher education events can strengthen connections between the institution and the community and — if actively promoted — draw others to the region. Where possible events should be tied to target sectors and occupations.
- **Communities, regional organizations.** The following strategies relate to city and county leaders, economic development practitioners, workforce professionals, and others.





- ✓ **Former residents.** “Come Home” campaigns can help re-establish ties to former residents. Creating databases of area high school and college alumni is a starting point for marketing efforts (either through traditional channels, such as direct mail, or using social media tools such as Facebook or LinkedIn). Regardless of the channel, marketing messages should focus on opportunities (e.g. job postings, business expansions, investment opportunities, planning initiatives).
- ✓ **Extended network.** Establishing a network of people who have ties to the Purchase Region — former students, grown children of current residents, business travelers, tourists — provides a way for people who have positive feelings about the area to stay connected. Louisville’s Friends of Lou is an example of this approach. This strategy goes beyond talent attraction and can play an essential role in building support for projects and initiatives, facilitating investment in the region, and supporting entrepreneurship and small business growth.
- ✓ **Networking.** Providing opportunities for area residents to interact professionally and socially is a significant element of talent retention. Helping people develop and maintain relationships increases a sense of investment in the region and can make it more likely they will remain. Popular business networking events include card exchanges, regular breakfast meetings on topics of concern and “speed” networking.
- ✓ **Employers.** Frequent contact with local employers aids with the retention of both businesses and workers. Outreach efforts should focus on ensuring that area training programs continue to match business needs and that businesses are making full use of available workforce development incentives (e.g., customized training incentives, tuition reimburse tax credits, etc.).
- ✓ **Current residents.** Gathering information from current residents about quality-of-place issues, like transportation access, housing options, and the availability and quality of local amenities, provides an important tool for identifying gaps and weaknesses likely to affect talent retention and attraction. Annual community surveys can provide a mechanism for this task.
- ✓ **Higher education offerings.** Information about the region’s educational offerings should be incorporated into talent-related marketing. Elements to emphasize include specific programs that support target industries, niche programs that help differentiate the region, university-sponsored events, and continuing education and professional development opportunities.
- ✓ **Current students.** Market area events to regional colleges and universities to engage current students. Promote “young professionals” events and leadership opportunities to help create a sense of belonging to the area.
- **Tourism.** Tourism initiatives can also play a role in talent management strategies. Increasing the number of visitors to the region increases the pool of people who have an association with the area.
- ✓ **Online tools.** The availability of interactive media makes far-reaching marketing strategies possible. Creative use of sites such as YouTube and Facebook can bring the Purchase Region to a mass audience for much lower cost than traditional media. However, to be successful, social media campaigns require a sustained and engaging effort.
- ✓ **Regional approach.** Tying individual tourism assets and initiatives helps to expand the reach of tourism

dollars. Drawing visitors from neighboring states presents the most immediate opportunity.

- ✓ **Conventions & meetings.** Implementing a convention and meeting strategy focused on targeted occupations, groups, or industries helps bring in people who fit the region's talent needs and exposes them to the area's amenities.

## Innovation

One critical component of innovation is the presence of a responsive and flexible business climate. Kentucky has made a number of strides in addressing issues related to education, taxes, and the availability of incentives. Its success in this respect can be seen in the number of high profile recruitment projects that have landed in the state in recent years. However, Kentucky still does not compare favorably with surrounding states on a number of factors — a situation which affects the competitive position of Purchase-area businesses and economic development organizations.

### Tax comparisons

While workforce nears the top of the list of factors affecting business expansion, recruitment, and retention decisions, cost-related concerns are often paramount. A review of publicly available rankings suggest Kentucky continues to lag the majority of states on a number of business tax indicators.

One of the most commonly cited tax comparisons is prepared by the Tax Foundation, a nonpartisan research group

based in Washington, D.C. The organization's annual State Business Tax Climate Index (SBTCI) ranks the fifty states on five indices: corporate taxes, individual income taxes, sales taxes, unemployment insurance taxes, and property taxes. Each index is comprised of several factors.

A review of the 2010 SBTCI reveals significant improvements in Kentucky's overall ranking, which rose from 34 in 2009 to 20 in the 2010 edition, an increase of 14 points. Kentucky also fared well on the overall ranking relative to a number of its neighbors. However, much of the reason for Kentucky's relative advantage lies in its favorable rank with regard to sales and property taxes. On the remaining three indices – corporate taxes, individual income taxes, and unemployment insurance taxes – Kentucky's performance is considerably less impressive.

A quick summary of Kentucky's performance on each component of the 2010 SBTCI is provided below.

- **Sales tax.** Although Kentucky has a relatively high state sales tax (6 percent), lack of local taxes make the state's combined tax rate among the lowest in the country. The state's 7th place ranking on this factor placed it at the top among neighboring states. At 49, Tennessee ranked lowest.
- **Property tax.** Kentucky placed in the top half of the US (#20) and fared better than many of its neighbors on this index. The state received high marks for having consistently low property tax rates and per capita property tax collections (estimated at \$611). However, Kentucky's ranking was negatively affected because

it was one of a small number of state's that imposed certain taxes, including levies on corporate inventories, on the transfer of real estate, and on inheritance. Tennessee, Ohio, and North Carolina received poor marks on this sub-indicator as well.

- **Unemployment insurance.** Kentucky fared significantly better on this index than in prior years, although at #36, it was still firmly in the bottom half of the rankings. At 10 percent, Kentucky's minimum unemployment insurance tax rate tied with four other states, including Tennessee, as being among the country's highest. Only Michigan had a higher rate, at 10.3 percent. Kentucky's charging method also negatively impacted ratings on this index.

*American companies often function at a competitive disadvantage in the global economy. They pay one of the highest corporate tax rates of any of the industrialized countries. The top federal rate on corporate income is 35 percent, and states with punitive tax systems cause companies to be even less competitive globally.*

*2010 State Business Tax Climate Index (Seventh Edition), Tax Foundation*

❶ **Corporate tax.** At #42, Kentucky received its worst ranking for its corporate tax structure. Corporate income is generally defined as profit (gross receipts minus expenses). However, a growing number of states, including Kentucky, have enacted taxes on a business's gross receipts with few or no deductions. The state was also penalized for its corporate rate structure (with top rates kicking in at just \$100,000 of income) and the fact that Kentucky is one of only 15 states that does not adjust corporate tax brackets for inflation (resulting in higher tax payments).

❷ **Individual income tax.** As with corporate income taxes, Kentucky ranks in the bottom half of all 50 states and does not compare favorably with neighboring states. The state's 32nd place ranking occurs largely because of structural issues, including a relatively large number of brackets and relatively low standard deductions and exemptions.

❸ **Occupational taxes.** Occupational taxes are worth noting in this discussion of tax burden because they are not evenly distributed throughout the region. The following findings are based on analysis of 2010 Local Occupational License Taxes published by the Kentucky Cabinet for Economic Development:

- ✓ Of the eight Purchase Region counties, four levy a county occupational tax of 1.00 percent on employees (salaries and wages): Ballard, Graves, Marshall, and McCracken.
- ✓ Marshall and McCracken Counties levy the tax on both employees (1.00% on salaries and wages) and employers, with a 1.00% levy on net profits/receipts.
- ✓ Of the 15 cities for which data were provided, five cities levied an occupational tax on both profits and wages (Fulton, Hickman, Mayfield, Calvert City, and Paducah). The cities of Benton and Clinton levied the tax on wages only.
- ✓ Of the region's 12 school districts, only one – Marshall County School District – levies the tax.

- ✓ At a combined rate of 3.00%, residents of Paducah and Mayfield face the highest occupational tax rates.
- ✓ Of neighboring Pennyriple Region counties (Livingston, Lyon, and Trigg), only Livingston County has an occupational tax which is levied at 1.00% on both employees and employers. At the city level Eddyville has a 1.50% tax on both salaries/wages and on profits/receipts. Cadiz taxes salaries and wages only at the same rate. None of the neighboring Pennyriple school districts impose an occupational tax.

Because of these disparities, occupational taxes can be viewed as an obstacle to competitiveness. Differences among Kentucky counties affect industry recruitment and expansion activities. The complicated structure of the tax — applied at different rates to business or workers or both — is confusing for many. Professionals and small businesses that operate across counties, such as real estate professionals, contractors, plumbers, electricians, and home health care workers, may be required to file in multiple counties creating a burden in terms of cost and paperwork.

### Manufacturing & Business Priorities

The Kentucky Manufacturers Association (KMA) and the Kentucky Chamber (the Chamber) have each identified a number of issues affecting the competitiveness of businesses in the state. Priority items from the legislative agendas published by both groups include:

*Kentucky rose through the ranks faster than any other state this year, up 14 spots from 34th best in the 2009 Index to 20th this year. That might be surprising to Kentuckians who have not seen much change in their tax system, but sometimes standing fast is a virtue. Many economically damaging changes were enacted in other states that previously ranked better than Kentucky. This was particularly true in the personal income tax, where Kentucky saw gains as other states added more brackets with higher rates.*

2010 State Business Tax Climate Index (Seventh Edition), Tax Foundation





Figure 4.4 | Selected Findings from State Business Tax Climate Index (SBTCI), FY 2010 (7th Edition)

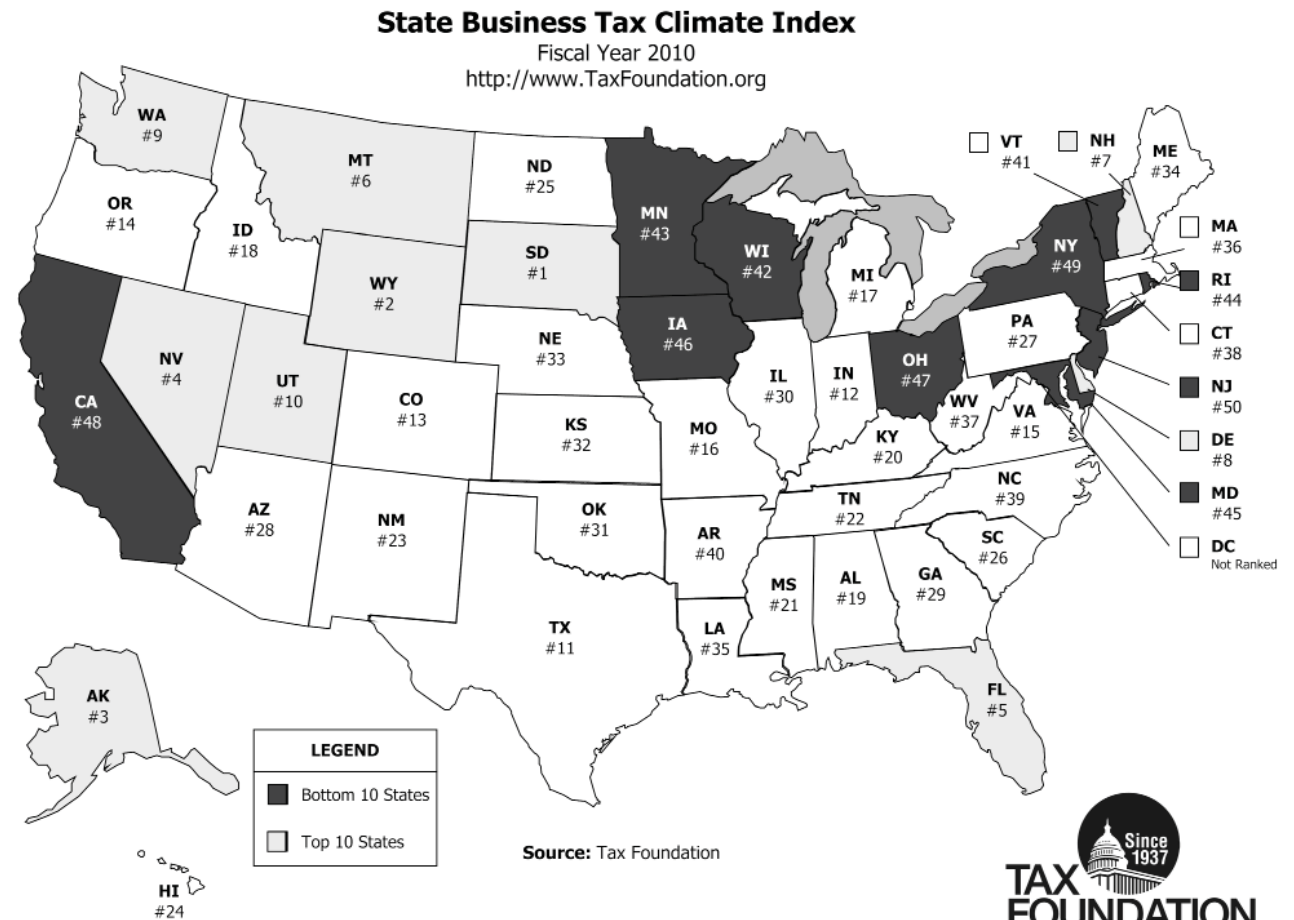
Table: Major SBTCI components

Kentucky and Neighboring States

State	Overall Rank	Corporate Tax Index Rank	Individual Income Tax Index Rank	Sales Tax Index Rank	Unemployment Insurance Tax Index Rank	Property Tax Index Rank
IN	12	21	11	20	11	12
VA	15	4	20	8	44	29
MO	16	5	27	16	7	18
<b>KY</b>	<b>20</b>	<b>42</b>	<b>32</b>	<b>7</b>	<b>36</b>	<b>19</b>
TN	22	11	8	49	32	46
IL	30	27	10	41	46	39
WV	37	24	39	22	31	28
NC	39	25	36	34	5	37
AR	40	39	34	43	17	20
OH	47	38	46	37	10	49

Map: SBTCI Overall Rank

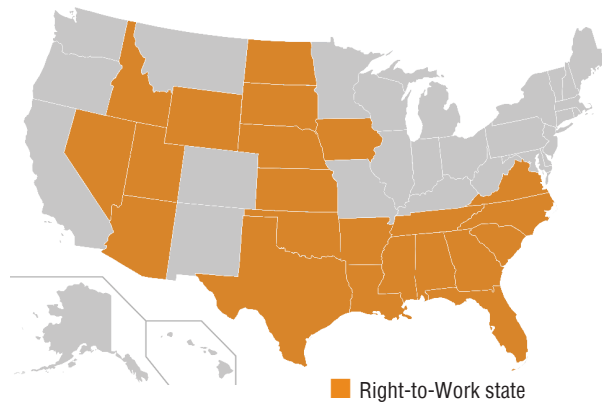
South Dakota, Wyoming and Alaska receive top marks



SOURCES: State Business Tax Climate Index, FY 2010 (7th Edition) prepared by the Tax Federation (Background Paper 59, September 2009).

Note: The higher the ranking, the more favorable a state's tax system is for business (i.e., #1 is the most favorable; #50 is the least). Overall rank does not represent an average of individual component rankings. States without a given tax rank equally as number 1. The 2010 SBTCI represents the tax climate of each state as of July 1, 2009, the first day of the standard 2010 fiscal year. Rankings for some state's Individual Income Tax Index were not consistent between the printed report and summary data files available for download. The figures reported here are consistent with the published report.

Figure 4.5 | Right to Work States



SOURCE: Based on National Right to Work Legal Defense Foundation

- ✓ **Energy.** Uncertainty regarding fuel prices, consumer interest in “green” products, federal renewable portfolio standards, and the potentially game-changing implications arising from federal regulation of carbon emissions have combined to place energy among the top priorities for both groups.
- ✓ **Education & training.** The majority of jobs that will be added to the economy in the coming decade will require some form of training beyond high school. Both KMA and the Chamber include improving education at all levels as part of their legislative agendas. In *A New Agenda for Kentucky*, the Chamber calls for the Commonwealth’s school districts to embrace the restructuring strategies outlined in *Tough Choices or Tough Times: The*

*Report of the New Commission on the Skills of the American Workforce*, a 2006 report by the National Center on Education and the Economy (NCEE). According to a February 17, 2010, NCEE press release, Kentucky is one of eight states that will implement a pilot program funded by the Bill and Melinda Gates Foundation using the Board Examination Systems approach introduced in the *Tough Choices/Tough Times* report.

- ✓ **Taxes.** With passage of the Alternative Minimum Calculation (AMC) tax in 2005 and its successor, the Minimum Limited Liability Entity Tax (LLET), Kentucky has joined a growing number of states with a tax on gross receipts or profits. Business groups, including KMA and the Chamber have expressed concern about the impact of the tax on economic competitiveness. The Tax Foundation points to flaws in the design of such taxes, most notably the unavoidable tax pyramiding that results from their use as goods are taxed at each stage of production: “This repeated taxing at each link in the production chain results in punitively high effective tax rates on complex products produced in stages by more than one company, and low rates on products with few production stages or that are produced entirely in-house.” (*Special Report No. 147*, page 6)
- ✓ **Incentives.** Passed in 2009, House Bill 3 marks an important step in revising Kentucky’s business incentive programs. Incentives for the New Kentucky or INK is noteworthy because it extends the use of incentives to existing businesses. In addition to expanding eligible

costs and reimbursement levels for manufacturing reinvestment credits, HB 3 combined a number of existing tax credits into a streamlined tax incentive program for new and expanding businesses and authorized sales and use tax refunds for communications and computer equipment purchases under certain circumstances. Continuing to improve available incentives is part of the agenda for both the Chamber and KMA.

- ✓ **Right-to-work (RTW) laws.** The *perception* of labor relations in the Purchase Region was identified as an obstacle to development by multiple sources, despite the fact that employers interviewed for this work did not raise it as an issue. Nationally publicized struggles, such as the lockout of workers at the Honeywell facility in nearby Metropolis, Illinois, may help to perpetuate this view. While a number of neighboring states do not have RTW laws, the entire southeastern US — a region with which Kentucky competes heavily for business location and expansion projects — are all right-to-work states.

## Infrastructure

A number of factors affect quality of place ranging from recreational and cultural amenities to educational opportunities and housing options. In the context of this report, we focus on significant infrastructure projects in the works that have the potential to expand access to the Purchase Region for residents, visitors, and businesses.

Improving transportation infrastructure throughout the Purchase Area Development District will be critical for the long-term success of the region. The Interstate 69 corridor, when completed, will facilitate trade for existing companies in the area, attract new investment to sites that the region hopes to develop, and link western Kentucky to other popular tourist destinations. Completion of the US-68/KY-80 project will also enhance trade within the state and encourage tourism west of the Land between the Lakes Park. The Kentucky Dam Lock Project is expected to provide hundreds of local construction jobs over the life of the project. Once completed, the 1,200-foot lock will significantly increase capacity and reduce waiting time.

### Interstate 69

The proposed I-69 corridor, often referred to as the NAFTA Superhighway, spans 2,680 miles from Mexico to Canada. Completion of this project has the potential to shift cargo patterns and to relieve congestion along existing routes (such as, I-40, I-65, I-81). Based on projected traffic volume, infrastructure improvements over the next two decades will be increasingly necessary.

According to a profile of the seven-state I-69 corridor (Texas to Michigan) posted on a US Department of Transportation's Federal Highway Administration website:

*Without any further improvement to the corridor (no future widening of existing roadway and no new segments are constructed to lengthen the existing highway), the projected 2035 average daily traffic on the current existing highway will be over 90,000 which includes over 19,000 trucks. By 2035, 84*

*percent urban segments will be under heavy congestion. Congestion for non-urban segments will increase from the current under 1 percent to over 70 percent.*

There is significant support for the project: Congress has identified I-69 corridor as a high priority; the project list is clearly defined; and there is political support of all of the states involved. The project has secured Corridors of the Future Funding, including \$800,000 in Transportation, Community, and System Preservation (TCSP) for an I-69 innovative financing study.

- **Overall I-69 status:** Work on the corridor is completed from Port Huron, Michigan, to Indianapolis, Indiana, as well as a small section in Mississippi.

The remaining 2,000 miles—divided into 32 separate sections—of the project are in various stages of development. Texas has identified its portion as part of the TransTexas Corridor and Indiana has undertaken environmental clearance work.

- **I-69 in Kentucky:** The proposed route for I-69 through Kentucky consists of approximately 156 miles divided into three segments:
  - ✓ **SIU4.** Consisting primarily of the new Ohio River Bridge and six miles of new highway to connect to the Pennyryle Parkway south of Henderson, the approximate cost of this segment is \$1.4 billion. Environmental work is needed on SIU4 to move it forward.

**Figure 4.6 | Interstate 69 in Kentucky**  
**Segments of Independent Utility (SIU)**



SOURCE: BuildI-69.ky.com

**Figure 4.7 | Land-Between-the-Lakes  
Highway 80 as a vital link**



SOURCE: Photo by Michael Baker, Inc., used by permission of the Kentucky Transportation Cabinet

- ✓ **SIU5.** This section involves upgrading the Pennrylle and Western Kentucky parkways from Henderson to Eddyville. A scoping study completed in 2006 found the price for upgrades to be \$145-\$450 million, depending on the level of upgrades eventually required by the US DOT.
- ✓ **SIU6.** This section runs from Eddyville south to Fulton at the TN border. The state is currently conducting a scoping study to determine the upgrade costs to the Purchase Parkway.
- **I-69 Benefits:** Interstate access greatly improves a community's economic development prospects. In Kentucky, 2003 figures from Kentuckians for Better Transportation show that counties with single or multiple Interstate access points had a per capita income of \$30,122. Counties with parkway and/or single Interstate access had a per capita income of \$22,328. Counties with no high quality road—which includes much of western Kentucky—had a per capita income of \$19,277. When the project is completed, seventeen of the nation's top 25 seaports will be directly connected to I-69 and fifteen of the nation's top 25 air cargo airports will be directly accessible to I-69.

### Highway 80 Bridges

US 68/KY 80 is the only east-west gateway into the Land Between the Lakes park area, serving as the primary connection between Murray and Cadiz. Transportation officials have labeled the Eggner's Ferry Bridge over Kentucky Lake (Tennessee River) and the Lawrence Memorial Bridge

over Lake Barkley (Cumberland River) as “functionally obsolete.” Residents of Murray point out that the bridges “might as well be walls.” The lack of functional east-west connectivity inhibits intrastate commerce and further isolates western Kentucky from the rest of the state.

The bridges, built in 1932, are insufficient to meet contemporary transportation demands, have ongoing maintenance issues, and are too narrow. In addition to replacing the bridges, redevelopment plans call for the four-lane reconstruction of the route from Mayfield through the Land Between The Lakes to Cadiz. On July 14, 2009, Governor Beshear unveiled the new basket handle, tied-arch design for the two new bridges. According to the design, the new 550-foot, four-lane spans will include 11-foot lanes, 4-foot shoulders and an 8-foot sidewalk and bike path. The bridges will tie in with the reconstructed US 68/KY 80 corridor. Including design costs, each bridge is estimated at \$178 million and construction is scheduled to begin in 2011. The entire project, including bridge reconstruction, is scheduled for completion in 2017.

### Inland Waterways

Given the importance of the river to the Purchase Region economy, a coordinated and aggressive strategy should be considered. With two existing ports and two developing ports in the region, the potential exists for expansion of maritime activities if properly supported. This section identifies infrastructure and other considerations that relate to this strategy.





● **Current studies.** At the time of this study, port-related planning projects were being undertaken by at least two of the area's four port authorities:

- ✓ The Greater Paducah Economic Development Council (GPEDC) is conducting master planning activities in connection with its Riverport West site. Located approximately 10 miles from the Paducah-McCracken County Riverport, the site contains approximately 1,650 acres, of which roughly 1,300 acres are currently believed to be developable. When completed, Riverport West is expected to capture future expansion of facilities and services from the existing port.
- ✓ Opportunities surrounding the Wickliffe-Ballard County Riverport are being evaluated as part of a larger planning effort for Ballard County.

The results of these studies, as well as any other relevant work ongoing at the state or federal level, should be used to create a strategy for marketing the ports and funding needed investments to accommodate expansion of activities.

● **Panama Canal.** As part of a regional maritime strategy, emphasis should be placed on tracking the expansion of the Panama Canal. The ability to expand container-on-barge (COB) traffic will be limited without substantial improvements to “gateway” ports, such as the Port of New Orleans and the Port of Gulfport, as well as to existing Purchase Region ports. Monitoring the status of improvements through groups such as

Figure 4.8 | Kentucky Riverports



● **Operating Ports**

1. Hickman-Fulton County Riverport Authority
2. Paducah-McCracken County Riverport Authority
3. Henderson County Riverport
4. Owensboro Riverport Authority
5. Louisville-Jefferson County Riverport Authority
6. Greenup-Boyd County Riverport Authority
7. Eddyville Riverport & Industrial Development Authority

● **Developing Ports**

8. Wickliffe-Ballard County Port Authority
9. Marshall County-Calvert City Riverport Authority
10. Meade County Riverport
11. Maysville-Mason County Port Authority

SOURCE: Image courtesy of Hanson Professional Services, Inc., as published in *Kentucky Riverport Improvement Project*, prepared for the Kentucky Transportation Cabinet, January 2008.

Figure 4.9 | Estimated costs of rehabilitation and needed infrastructure improvements

Ports	Capital Needs	Estimated Costs*	
		0-5 Years	6-15 Years
<b>Operating</b>			
Paducah-McCracken County	Master plan, surveys, geotech., preliminary engineering	\$350,000	
	General cargo dock expansion and surfacing	\$5,000,000	
	Heavy lift crane - replacement for tower crane	\$5,000,000	
	Preliminary development of Riverport West	\$1,000,000	\$5,000,000
Hickman-Fulton County	Land acquisition - 10 acres	\$2,000,000	
	New warehousing	\$3,000,000	
	New general cargo dock	\$7,500,000	
	Improvements to site, access, and storage		\$5,000,000
<b>Developing</b>			
Wickliffe-Ballard County	Engineering studies to determine acreage for development (master plan), surveys, geotech	\$400,000	
	New road to proposed port site	\$100,000	\$1,000,000
	Infrastructure to develop terminal operations		\$5,000,000
Marshall County-Calvert City	Acquisition of property	\$1,000,000	
	Infrastructure to develop industrial sites and terminal		\$5,000,000
	Roadway for better connection to US-62 and I-24		\$3,000,000
<b>Regional Total</b>		<b>\$25,350,000</b>	<b>\$24,000,000</b>

SOURCE: Kentucky Riverport Improvement Project, Hanson Professional Services Inc, 1/22/08. \*The opinions of cost were provided by the ports and are not based on data developed by Hanson.

state departments of transportation and the US Army Corps of Engineers should be part of a regional infrastructure strategy.

- Kentucky Lock Addition Project.** Funding received under the American Recovery and Reinvestment Act has jump-started this long-standing project which will ultimately increase capacity of the existing lock and speed transit time. The central element of the project is the expansion of the existing lock from 600 feet to 1200 feet. The expansion is needed to better accommodate barge traffic, most of which exceeds the length of the current lock. According to the US Army Corps of Engineers, most of traffic transiting the lock is required to perform a “double lockage” procedure, which has resulted in average wait times of 6 hours to transit the lock. In addition to upgrading the lock facilities, the project will add amenities to the area including a new 2-lane boat ramp, a public visitor center, improved access to fishing areas, and a pedestrian/bicycle bridge. It is listed as a priority project of the West Kentucky Regional Chamber Alliance.
- Lockage fee.** The lockage fee currently under consideration by the federal government as a means of replenishing the Inland Waterways Trust Fund could have a serious impact on the feasibility of COB traffic in the Tenn-Tom corridor. Under this proposal, a toll would be levied on a per barge basis when the barge transits a lock. With 12 locks along its length, such a fee would create a financial disadvantage for barge traffic in this corridor. This issue has been identified as a priority project by the West Kentucky Regional Chamber



Alliance and the proposed passage of the fee has been noted as “ill-conceived” by the Inland Waterways Users Board. Monitoring the status of the proposal should be part of a regional infrastructure strategy.

- Capital needs.** A 2008 study of Kentucky’s riverports sponsored by the Kentucky Transportation Cabinet identified nearly \$50 billion dollars of needed investment in the region’s existing and developing ports. **Figure 4.10** provides an overview of the needs and estimated costs as identified by the ports at the time of the study. The following is a brief summary of the profile of each port prepared as part of the 2008 evaluation:

#### Operating ports

- ✓ Paducah-McCracken County Riverport. Located near the confluence of the Tennessee and Ohio Rivers, Paducah-McCracken is the nation’s northernmost ice-free riverport facility. Proximity to US Highways 60 and 62 and Interstate 24 allow access to markets outside the region. At the time of the 2008 study, port officials reported handling as much as 1 million net tons. Primary tonnage commodities include sand, gravel, fertilizer, rubber, and graphite. The port offers a range of services including barge discharge to truck or conveyor, barge loading by crane or conveyor, and storage from truck or rail. The potential for handling container-on-barge traffic was being evaluated.

- ✓ Hickman-Fulton County Riverport Authority. Currently the only Kentucky port operating on the Mississippi River, Hickman-Fulton lies adjacent to a natural slack water harbor ensuring a steady level of water that facilitates loading and unloading. The port offers a similar range of services for commodity and break bulk as does Paducah-McCracken. Lack of highway access and some configuration issues may affect the port’s competitive position, but the biggest threat to the port is Cates Landing, a major intermodal port under development 18 miles south. An inability to secure federal funding has delayed the Tennessee port’s progress.

#### Developing ports

- ✓ Marshall County-Calvert City Riverport Authority. With roughly 1,800 acres of available land, the Marshall-Calvert site has attracted the interest of alternative fuels ventures since shortly after the Authority was established in 2003. However, problems with the ethanol/biodiesel industry in the US have, as yet, kept these plans from becoming a reality. Issues with land acquisition, proximity to other ports, and limited interest among existing companies were cited as weaknesses of the proposed port in the 2008 study. The completion of Interstate-69 would provide an important boost to the site.
- ✓ Wickliffe-Ballard County Riverport Authority. According to the 2008 evaluation, the Wickliffe-Ballard County site faces some challenges in the

creation of a deep water port. These include a relatively small amount of developable land and the lack of an industrial client base. However, grain handling was identified as an opportunity, as was the expansion of Economy Boat Store. The Authority has requested funding for master planning and engineering studies from the Delta Regional Authority.

#### Air Service

Purchase Region residents have a number of options for air travel, including the region’s own Barkley Regional Airport (Paducah), and international airports in both Nashville and Memphis. This variety serves as both an asset and a challenge. On the one hand, having access



multiple airports may provide additional flight options for travelers. On the other hand, spreading air travel among multiple location can dilute the strength of a market, making it harder for smaller airports to attract and retain national carriers.

With two daily roundtrips to Chicago, the addition of United Express service at Barkley Regional in February 2010 was an important milestone for the region. Enhancing air service at Barkley should be a priority among the regional leadership. Creating a sense of regional ownership is an important first step. This could be accomplished through a regional marketing campaign that promotes the airport's relative convenience and the worldwide access that Chicago provides. A more aggressive approach could include changing the name of the facility to something more widely recognizable, such as the Greater Paducah Regional Airport. This strategy would help "place" the airport in the minds of people outside the region.

Strong general aviation facilities can also play a part in economic development of a region. Although they do not draw significant passenger traffic, general aviation facilities can serve as a catalyst for the development of support services, create a draw for aviation-related tourism, and provide a tool for the recruitment of corporate executives.

### Industrial sites

The Purchase Region boasts a number of available industrial sites. The largest of these, at more than 2,000 acres, is the Purchase Region Industrial Park (PRP) located in Graves County. The PRP is a certified "megasite" designed to attract large-scale industrial projects to the area. The site is managed by the Purchase Area Regional Industrial Authority, a 501(c)(3) corporation created through an interlocal agreement between all eight Purchase Region counties. Final acquisition of property was completed in 2008. The majority of engineering and environmental assessments have also been completed.

Other tracts of 1,000 acres or more are the Marshall County- Calvert City Industrial Park (approximately 1,800 acres) and the Riverport West site (1,700 acres) located near at the Paducah-McCracken County Riverport. Both sites are listed as "secondary" sites by the Kentucky Cabinet for Economic Development. This designation indicates that the sites are available, but have not met all criteria set by the Cabinet. These include ownership control, transportation access, and utility availability.

The presence of a state-level database of available sites and buildings is an asset for Kentucky communities. However, ensuring that the Purchase Region's sites are top of mind must be part of an economic strategy. This means cross-marketing of regional sites where possible, as well as working to raise the profile of the Purchase Region with economic development officials and others at the state level. ■

**Figure 4.10 | Distance of selected commercial airports from Purchase Region\***

Airport	City	State	Distance
Barkley Regional Airport	West Paducah	KY	29
Owensboro-Daviess County Regional Airport	Owensboro	KY	136
Evansville Regional Airport	Evansville	IN	147
Nashville International Airport	Nashville	TN	152
Memphis International Airport	Memphis	TN	159
Lambert-St. Louis International Airport	St. Louis	MO	207
Louisville International Airport	Louisville	KY	225

\*Distance calculated from Mayfield, Kentucky as approximate center of region using Google maps.





Figure 4.11 | Purchase Region Industrial Site, ranked by total acreage

Site (ID)	County	Total Acreage	Largest Possible Tract
<b>PRIMARY SITES</b>			
Purchase Area Regional Industrial Park (083-012)	Graves	2,109.3	1,127.3
Fulton Site (075-005)	Fulton	309.0	295.0
Information Age Park (145-001)	McCracken	268.8	42.7
Industrial Park West (145-002)	McCracken	136.6	76.6
Murray West Industrial Park (035-012)	Calloway	133.6	133.6
Hickory Industrial Park (083-001)	Graves	131.0	101.0
South Mayfield Park #2 (083-006)	Graves	121.0	121.0
Denton Site (145-005)	McCracken	104.7	104.7
Ballard Industrial Park (007-003)	Ballard	72.0	72.0
Wickliffe Site (007-001)	Ballard	30.0	30.0
Arlington Site (039-001)	Carlisle	13.6	13.6
Fulton Industrial Park (075-001)	Fulton	10.0	10.0
Murray-Calloway County Industrial Park (035-001)	Calloway	10.0	10.0
<b>SECONDARY SITES</b>			
Marshall County- Calvert City Industrial Park (157-007)	Marshall	1,854.8	1,156.5
Riverport West Site (145-008)	McCracken	1,782.0	1,782.0
Barkley Regional Airpark (145-006)	McCracken	678.2	292.0
Paducah Site (145-017)	McCracken	226.0	226.0
Bardwell Site (039-002)	Carlisle	160.0	127.0
Paducah Site (145-015)	McCracken	104.0	104.0
Murray Site (035-011)	Calloway	100.0	100.0
Paducah Site (145-020)	McCracken	90.0	90.0
Paducah Site (145-019)	McCracken	56.0	56.0
West Kentucky Technology Park (007-002)	Ballard	16.3	10.5
Bardwell Site (039-003)	Carlisle	10.0	10.0

SOURCE: Kentucky Cabinet for Economic Development, accessed summer 2010. Primary sites must have at least 10 contiguous, buildable acres that are free of known environmental impediments and meet specific criteria related to infrastructure availability. Secondary sites do not meet the Cabinet's criteria for primary sites, but are available for business location and expansion projects



# A: Regional Data Profile

To provide a common framework for our recommendations, we began by compiling demographic and economic data on the region. This section includes a profile of the eight-county Purchase Region (comprised of Ballard, Calloway, Carlisle, Fulton, Graves, Hickman, McCracken, and Marshall Counties in Kentucky). It is divided into three areas: demographic factors, economic trends, and workforce characteristics.

## About the data

A number of data sources were used to prepare this analysis.

- ***Population.*** Historical estimates of population by county are from the US Census Bureau; projections were prepared by Moody's Analytics.
- ***Educational attainment.*** At the time of this analysis, educational attainment data from the US Census Bureau's American Community Survey (ACS) were available for only four of the eight counties (Calloway, Graves, Marshall, and McCracken). For these counties, educational attainment ratios were calculated using 2006-2008 ACS averages. Data from the 2000 Census were used to calculate ratios for the four remaining counties.
- ***Income.*** Annual estimates of median household income at the county level were prepared by Moody's Analytics.

- ***Unemployment rate.*** Data are from the US Bureau of Labor Statistics' household survey (obtained via Moody's Analytics).
- ***Employment & occupation.*** Employment and occupational analyses were performed using Strategic Advantage, a suite of web-based analysis tools created by EMSI.

Except as otherwise noted, figures represent "complete" employment, rather than the "covered" employment typically produced by state and federal workforce agencies. Unlike covered employment, which includes only those industries covered by unemployment insurance, complete employment includes estimates of all industries.

Employment data are presented in accordance with the North American Industry Classification System (NAICS, pronounced "nakes"). The system was developed under the direction and guidance of the Office of Management and Budget as the standard for use by Federal statistical agencies in classifying business establishments for the collection, tabulation, presentation, and analysis of statistical data describing the US economy.



## DEMOGRAPHICS

The Purchase Region has grown slowly relative to the state and the nation. The eight counties reached a combined population of 175,000 in the late 1970s.

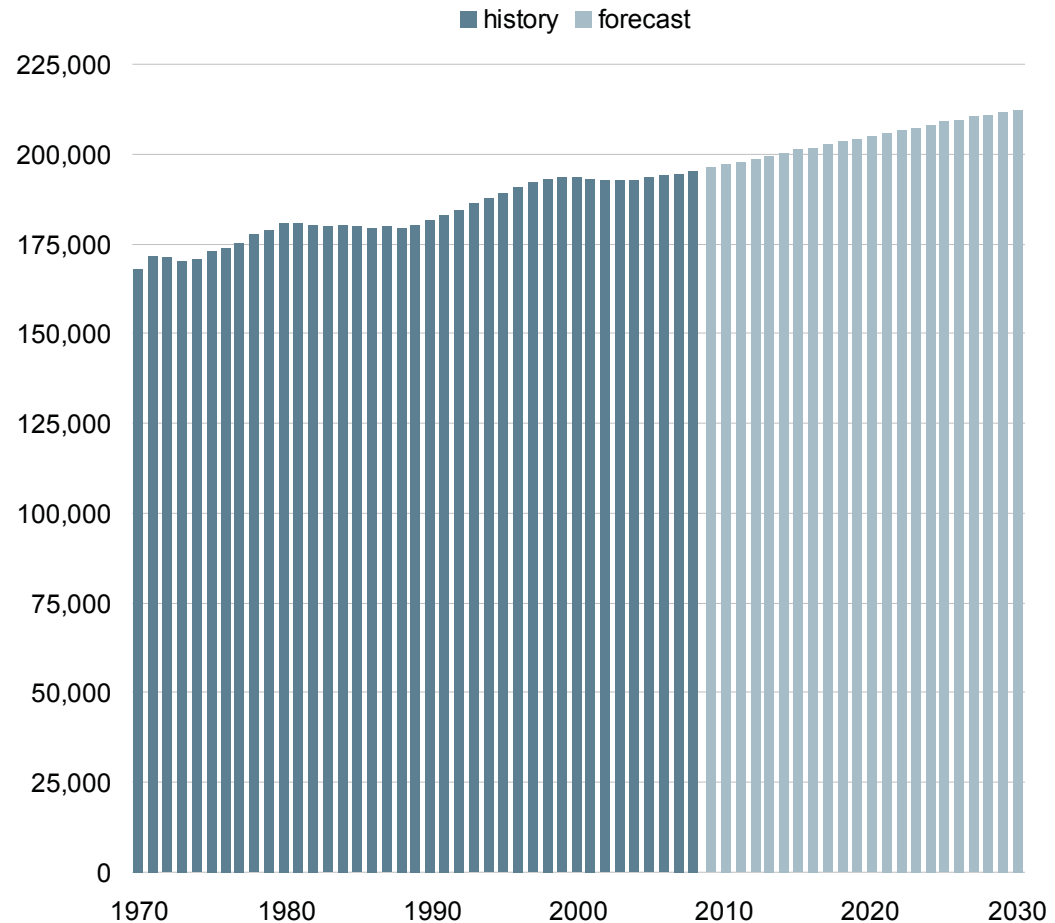
Population growth in the region has occurred in fits and starts, with short periods of expansion in the late 1970s and 1990s, both followed by a decade or so with little growth at all.

Current projections show the region is on track to pass 200,000 within the next five years. While this is an important milestone for the region, it cannot be overlooked that **it has taken more than 3 decades to add 25,000 new residents.**

One in three Purchase Region residents (or 33 percent of the population) lives in McCracken County. Calloway, Graves and Marshall Counties each have between 15 and 20 percent of the region's population. The combined population of the remaining four counties (Ballard, Carlisle, Fulton, and Hickman) comprises just 13 percent of the total. This distribution has changed little over nearly four decades.

Figure A.1 | Purchase Region population

*Moving steadily upward*



SOURCES: US Bureau of the Census (history); Moody's Analytics (projections)



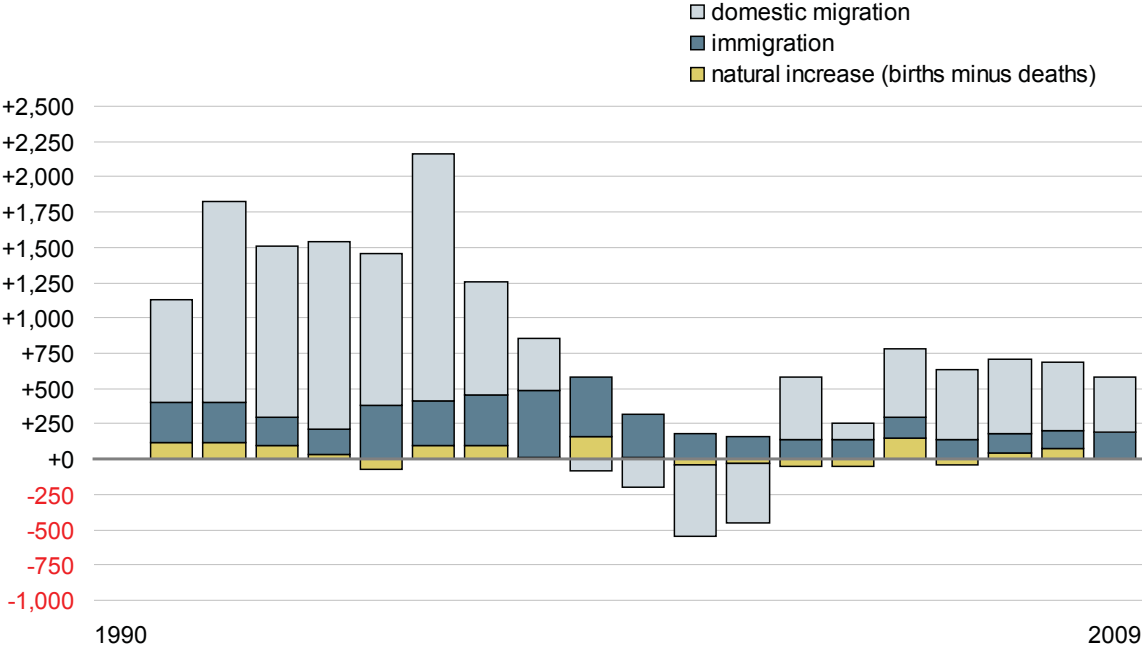


DEMOGRAPHICS

Figure A.2 | Purchase Region sources of growth

Population growth comes mostly from domestic in-migration

Annual net population increase (decrease)



The Purchase Region’s natural population increase (the difference between births and deaths) accounts for a relatively small percentage of growth.

The most significant driver of growth in the region is domestic migration (the flow of people between the Purchase and other parts of the US). It is also the most volatile component.

The region saw relatively large gains from domestic migration in the 1990s, adding 1,000 or more residents each year for much of the decade. After peaking in 1996 with a net gain of more than 1,700 residents, the flow of people began to reverse. After bottoming out in 2001, with a net loss of just over 500 people, migration in this decade has smoothed out, adding 400 to 500 new residents each of the last five years.

Though it makes up a smaller share than domestic migration, immigration (the influx of people from outside the US) has been the most stable component of growth.

SOURCES: US Bureau of the Census (history); Moody’s Analytics (projections)

## DEMOGRAPHICS

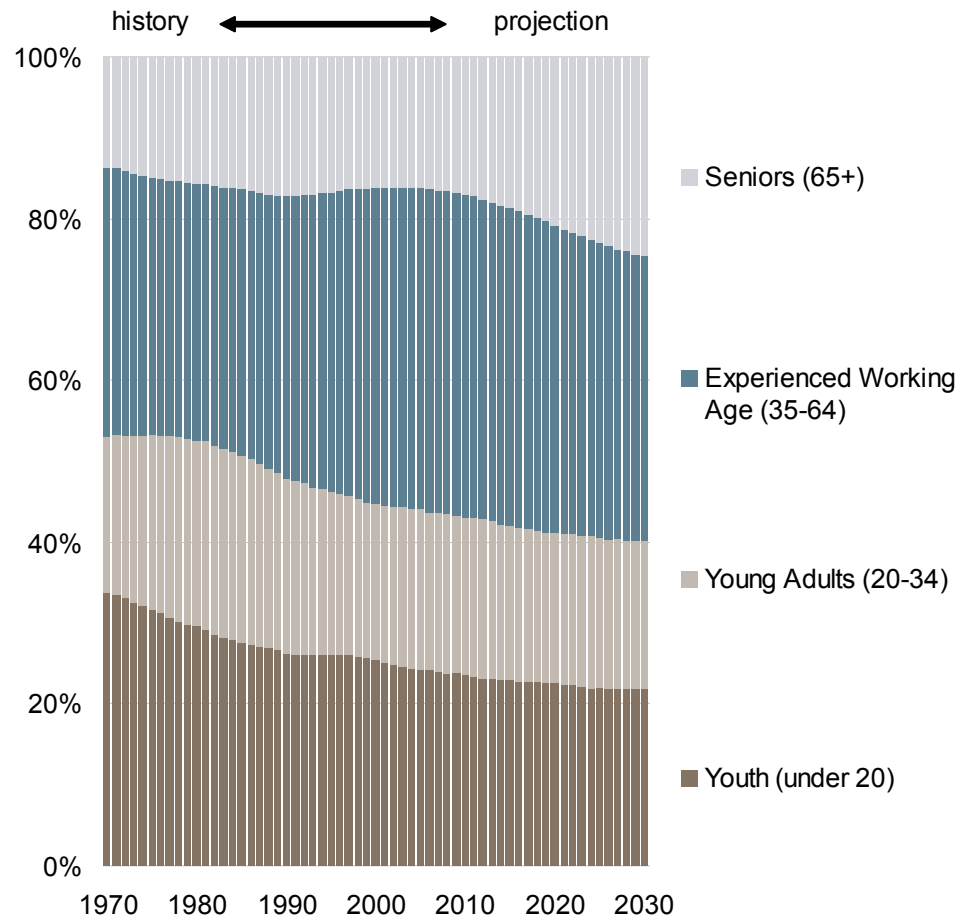
The age structure of the nation is changing and the Purchase Region reflects these changes as well. Retirement of the baby boomers will significantly increase the number of seniors.

As the senior population rises, the region's working age population — those between the ages of 20 and 64 — will be squeezed. This means that the Purchase Region labor force is unlikely to increase significantly, if at all.

The region's youth — those under the age of 20 — represent a shrinking share of the population. **In 1970, one in every three residents was in this age group. By 2030, they will represent barely one in five.**

Figure A.3 | Purchase Region population by age cohort

*A mirror of national patterns*

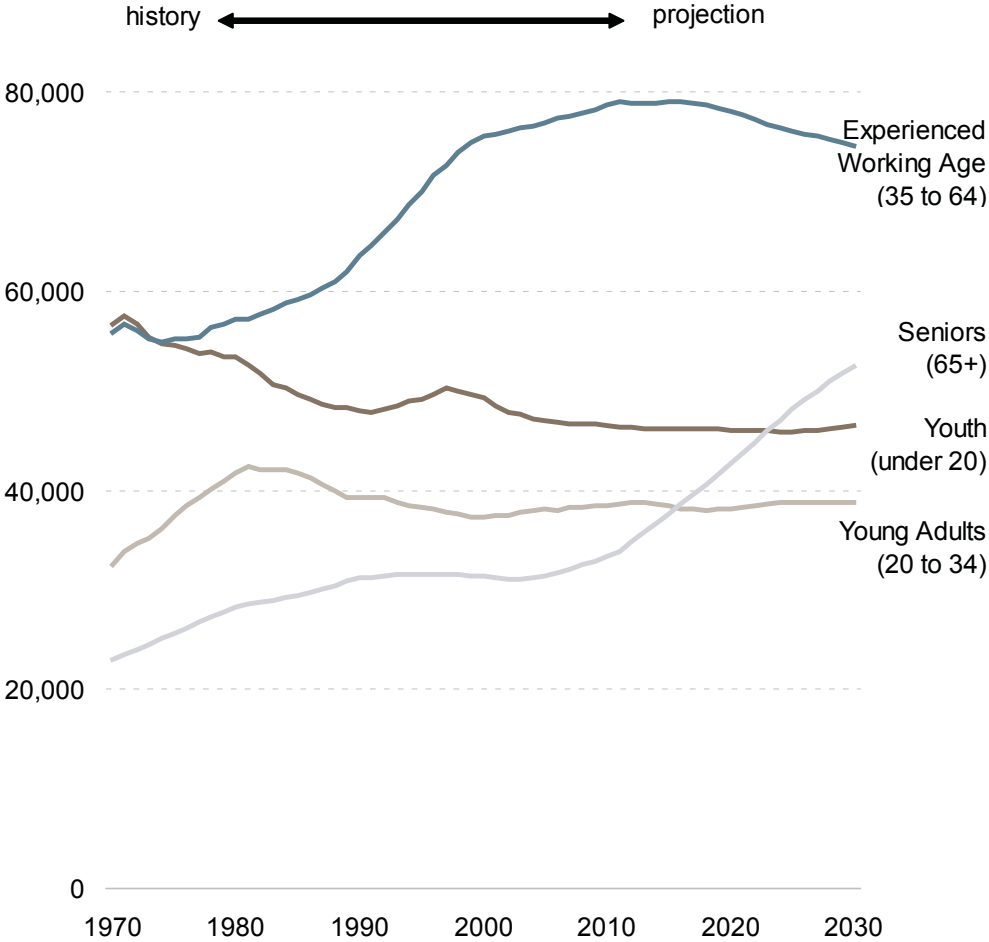


SOURCES: US Bureau of the Census (history); Moody's Analytics (projections)



DEMOGRAPHICS

Figure A.4 | Purchase Region net population change by age cohort  
*As seniors grow in number, other cohorts hold relatively steady*



A look at absolute numbers of people further illustrates the region's changing age structure. As the senior population in the Purchase Region grows in number, the rest of the population will maintain relatively steady or declining absolute levels across cohorts.

- The experienced working age population (age 35 to 64) will hold between 75,000 and 80,000 in the region over the next generation.
- The number of young adults (age 20 to 34) will hold steady at below 40,000 in the region over the next 20 years.

SOURCES: US Bureau of the Census (history); Moody's Analytics (projections)

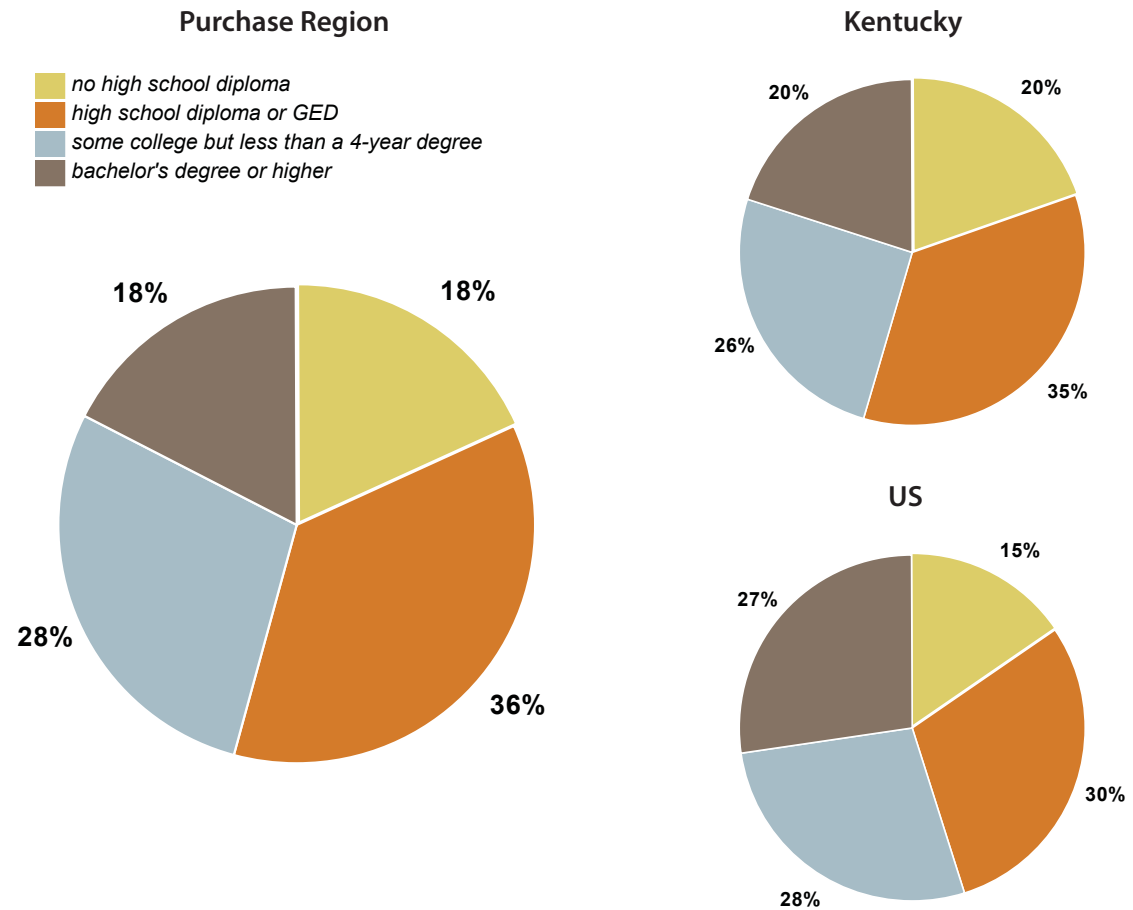
## DEMOGRAPHICS

At first glance, educational attainment in the Purchase Region looks remarkably similar to state and national averages. In fact, however, there are nuanced differences:

- Purchase Region adults are slightly more likely to have completed high school than the statewide average, with only 18 percent of residents lacking a high school diploma versus 20 percent statewide.
- But, they are less likely to have completed a four-year college degree than their fellow Kentuckians or than the US as a whole. Only 18 percent of Purchase Region residents age 25 years or older are estimated to have completed a bachelor's degree or higher. In contrast, this figure is 20 percent for Kentucky and 27 percent for the US.

**Figure A.5 | Educational attainment**

*Highest level of education achieved by the population age 25 or older*



SOURCES: US Census Bureau (decennial census & American Community Survey, 2006-2008 average) NOTE: For Ballard, Carlisle, Fulton, and Hickman counties, only Census 2000 averages were available; all other ratios are calculated from 2006-2008 ACS averages.



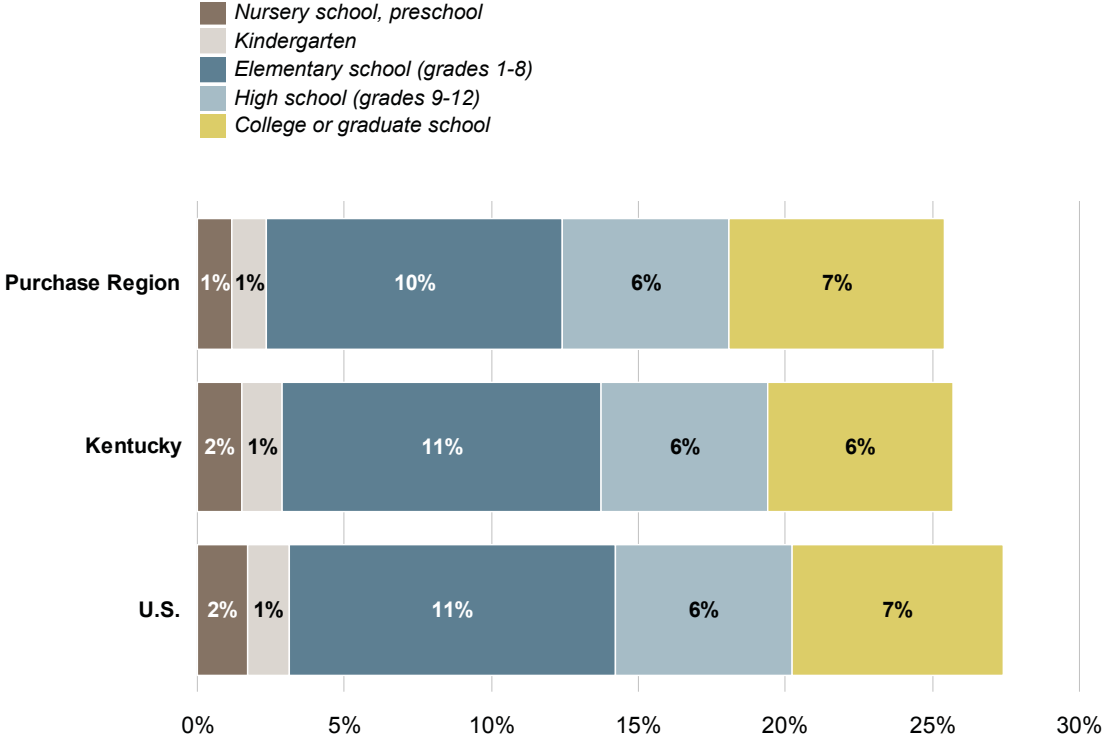


DEMOGRAPHICS

Figure A.6 | Current enrollment status of the population  
*Share of residents enrolled in some type of educational program*

At any given time, about 25 percent of the Purchase Region’s residents are enrolled in some kind of educational program, whether it’s nursery school or college or a vocational course.

The density of enrollment in the region (25 percent overall) falls only slightly below the state level (26 percent) and the US level (27 percent).



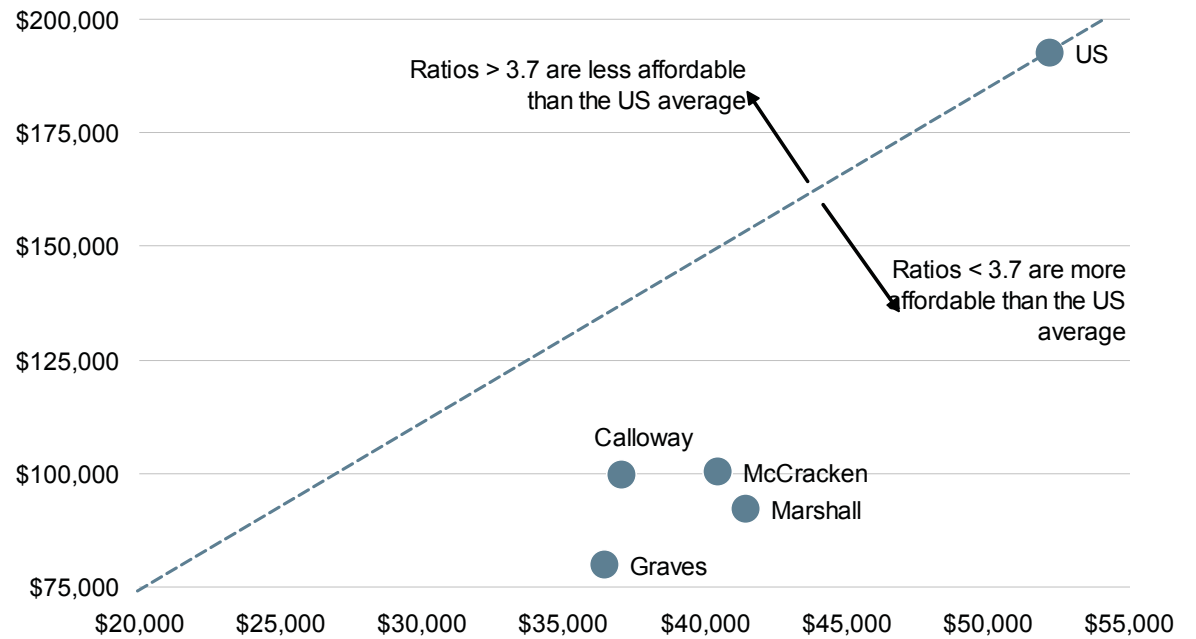
SOURCES: US Census Bureau (American Community Survey, 2006-2008 average)

## DEMOGRAPHICS

While incomes are lower in the Purchase Region than the US median, a dollar buys more. The median home value in the eight-county region is roughly 2.2 to 2.7 times the median household income. That's significantly less than the US average of 3.7 and reflects the region's high affordability.

After housing costs are taken into account, Purchase-area residents effectively have a larger share of their incomes available for other uses.

**Figure A.7 | Housing affordability ratios**  
*Beating the US average by a wide margin*



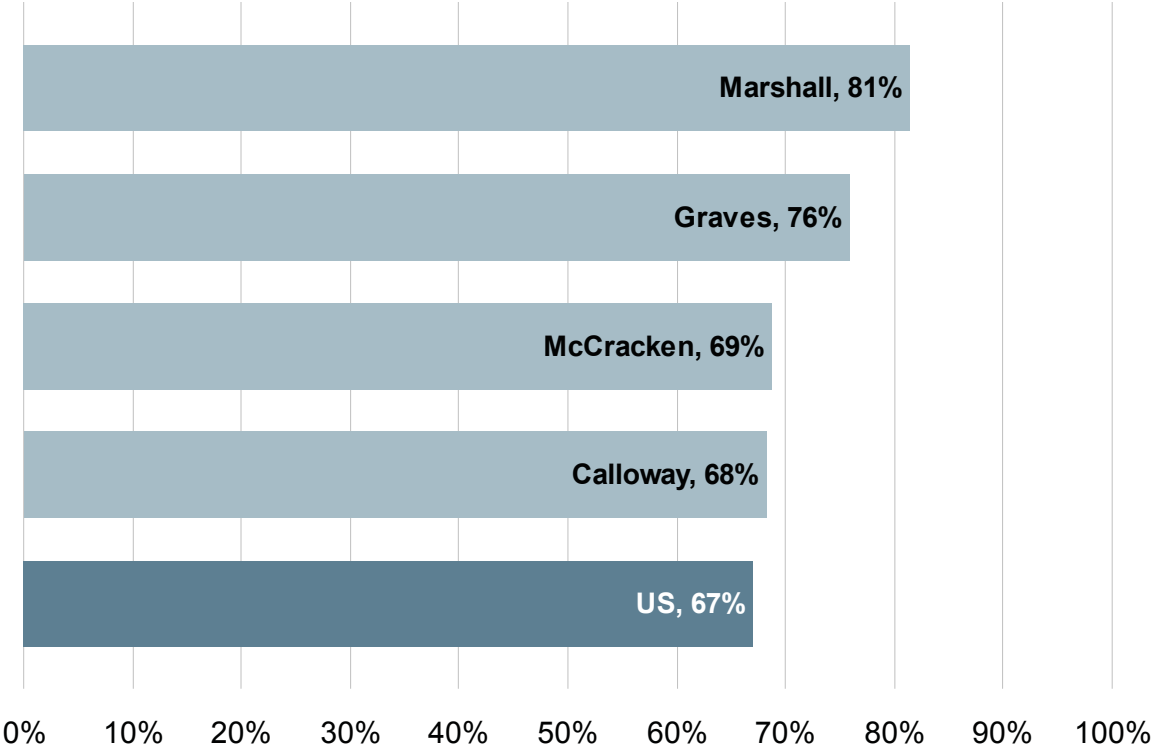
SOURCES: US Bureau of the Census, American Community Survey, 2006-2008 averages

NOTE: ACS data available for only four of the PADD region's eight counties



DEMOGRAPHICS

Figure A.8 | Homeownership rates for selected counties (%)  
*Good affordability goes hand in hand with high levels of owner occupancy*



Owner-occupancy rates (homeownership) from the most recent American Community Survey show that counties in the Purchase exceed the US average of 67 percent.

A high level of housing affordability in the region makes homeownership a more realistic goal for the area residents.

Data were available for only four of the region's eight counties in the most recent American Community Survey. Owner-occupancy in those four counties ranged from 68 percent to 81 percent.

SOURCES: US Bureau of the Census, American Community Survey, 2006-2008 averages

NOTE: ACS data available for only four of the PADD region's eight counties

## DEMOGRAPHICS

McCracken County draws the region’s largest share of inbound commuters. Calloway County also attracts a large surplus of inbound commuters.

The region’s other six counties tend to produce a net outbound commuter flow, or at least parity between inbound and outbound workers.

Marshall and Graves counties both send about 3,000 daily commuters into McCracken and another 1,200 or so into Calloway.

The heaviest two-way commuting in the Purchase Region is between McCracken and Marshall counties.

**Figure A.9 | Commuting patterns within the Purchase Region counties, 2008**

*An inter-connected region and workforce*

# number living and working in the same county

		Commuting to...							
		McCracken	Calloway	Graves	Marshall	Ballard	Fulton	Hickman	Carlisle
Commuting from...	McCracken	19,340	532	827	1,443	769	66	40	44
	Calloway	860	9,497	551	604	32	44	25	10
	Graves	2,932	1,123	7,400	609	186	190	153	92
	Marshall	3,149	1,215	442	5,718	72	36	21	27
	Ballard	1,096	63	76	93	910	—	10	70
	Fulton	114	83	148	—	—	852	158	—
	Hickman	157	59	159	30	28	172	653	48
	Carlisle	393	32	159	41	134	—	49	302

SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

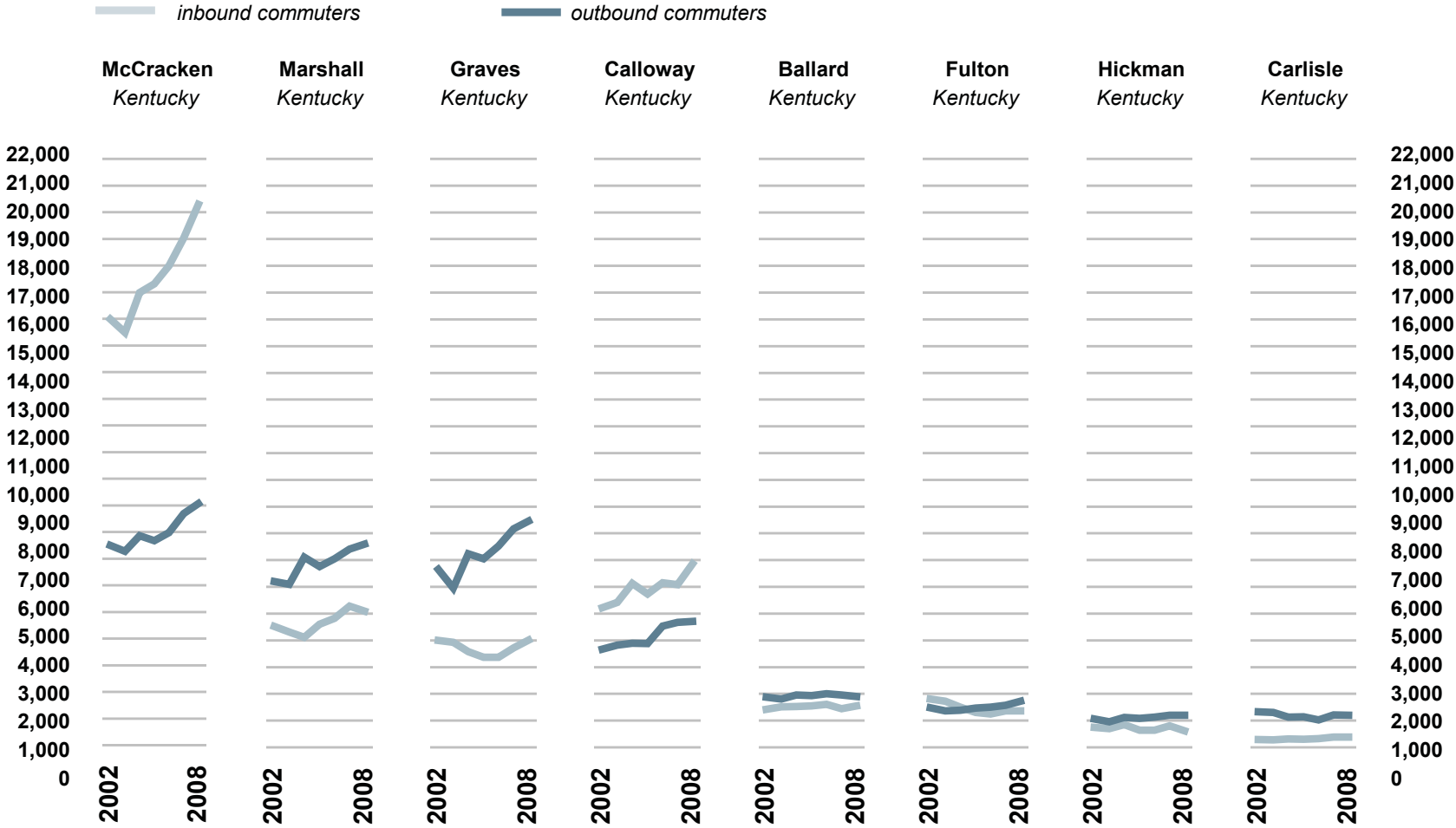




DEMOGRAPHICS

Figure A.10 | Purchase Region commuter flows by county

McCracken County draws the most inbound commuters



SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

## DEMOGRAPHICS

Household locations of the region's workers (left) are more dispersed than the region's employer locations (right).

Major employment sites are located heavily near either interstate highways or railroad lines.

**Figure A.12** provides county-by-county detail regarding commuting patterns. The region has drawn an increasing number of workers from outside its borders.

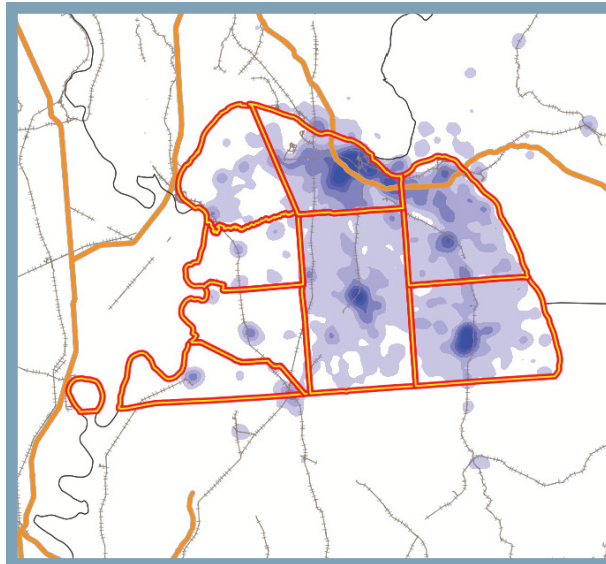
In terms of out-of-state workers, the northern Purchase Region counties (Ballard, McCracken, and Marshall) have connections with Illinois counties, particularly Massac County.

The remaining Purchase counties draw more heavily from Tennessee counties to the south — Henry, Weakley, and Obion.

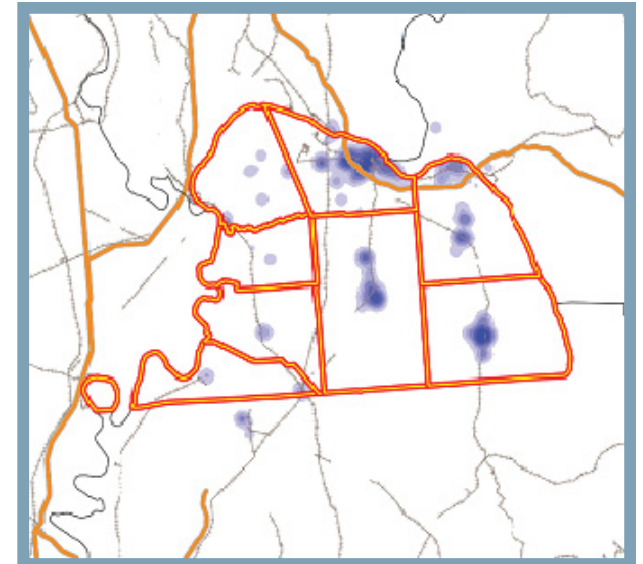
**Figure A.11 | The Purchase Region labor shed**

Map includes location of interstate highways and railroads

Where **employees** of  
Purchase Region businesses **live**



Where **residents** of  
Purchase Region counties **work**



SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

## DEMOGRAPHICS

Figure A.12 | Top 10 sources of workers in Purchase Region counties, 2006-2008

County of residence for people who work in ...

<b>BALLARD COUNTY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Ballard Co. (KY)	918	956	910
McCracken Co. (KY)	754	685	769
Graves Co. (KY)	190	190	186
Carlisle Co. (KY)	120	130	134
Marshall Co. (KY)	63	85	72
Massac Co. (IL)	46	47	67
Alexander Co. (IL)	58	49	44
Calloway Co. (KY)	10	22	32
Hickman Co. (KY)	37	46	28
Pulaski Co. (IL)	23	23	23

<b>CALLOWAY COUNTY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Calloway Co. (KY)	10322	9461	9497
Marshall Co. (KY)	1225	1074	1215
Graves Co. (KY)	1085	1087	1123
Henry Co. (TN)	758	598	724
McCracken Co. (KY)	421	488	532
Christian Co. (KY)	215	266	290
Jefferson Co. (KY)	131	131	171
Hopkins Co. (KY)	150	143	137
Daviess Co. (KY)	105	97	109
Warren Co. (KY)	129	92	99

<b>CARLISLE COUNTY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Carlisle Co. (KY)	317	348	302
Graves Co. (KY)	77	80	92
Ballard Co. (KY)	41	58	70
Hickman Co. (KY)	53	63	48
McCracken Co. (KY)	40	61	44
Marshall Co. (KY)	19	21	27
Calloway Co. (KY)	1	5	10
Dyer Co. (TN)	0	1	9
Hopkins Co. (KY)	3	5	7
Gibson Co. (TN)	2	7	7

<b>FULTON COUNTY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Fulton Co. (KY)	937	842	852
Obion Co. (TN)	442	494	523
Graves Co. (KY)	220	233	190
Hickman Co. (KY)	152	149	172
Weakley Co. (TN)	121	119	104
McCracken Co. (KY)	36	44	66
Calloway Co. (KY)	40	36	44
Marshall Co. (KY)	38	34	36
Warren Co. (KY)	3	9	12
Henry Co. (TN)	11	3	11

<b>GRAVES COUNTY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Graves Co. (KY)	7555	7370	7400
McCracken Co. (KY)	759	816	827
Calloway Co. (KY)	429	516	551
Marshall Co. (KY)	426	477	442
Jefferson Co. (KY)	71	135	160
Hickman Co. (KY)	164	164	159
Carlisle Co. (KY)	145	138	159
Fulton Co. (KY)	96	87	148
Hopkins Co. (KY)	114	88	84
Obion Co. (TN)	71	86	83

<b>HICKMAN COUNTY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Hickman Co. (KY)	678	617	653
Fulton Co. (KY)	129	160	158
Graves Co. (KY)	139	164	153
Obion Co. (TN)	83	86	57
Carlisle Co. (KY)	82	63	49
McCracken Co. (KY)	28	52	40
Calloway Co. (KY)	25	118	25
Marshall Co. (KY)	18	39	21
Weakley Co. (TN)	30	22	17
Ballard Co. (KY)	2	12	10

<b>MARSHALL COUNTY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
Marshall Co. (KY)	6054	6082	5718
McCracken Co. (KY)	1382	1515	1443
Graves Co. (KY)	641	673	609
Calloway Co. (KY)	544	592	604
Livingston Co. (KY)	342	389	331
Lyon Co. (KY)	196	184	211
Jefferson Co. (KY)	127	215	203
Caldwell Co. (KY)	150	155	157
Massac Co. (IL)	104	148	132
Hopkins Co. (KY)	87	85	99

<b>MCCRACKEN COUNTY</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>
McCracken Co. (KY)	20782	19820	19340
Marshall Co. (KY)	2944	3098	3149
Graves Co. (KY)	2707	2806	2932
Massac Co. (IL)	1803	1900	1924
Livingston Co. (KY)	1259	1319	1258
Ballard Co. (KY)	1190	1030	1096
Jefferson Co. (KY)	869	1051	1063
Calloway Co. (KY)	727	814	860
Daviess Co. (KY)	422	403	429
Hopkins Co. (KY)	325	410	414

SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

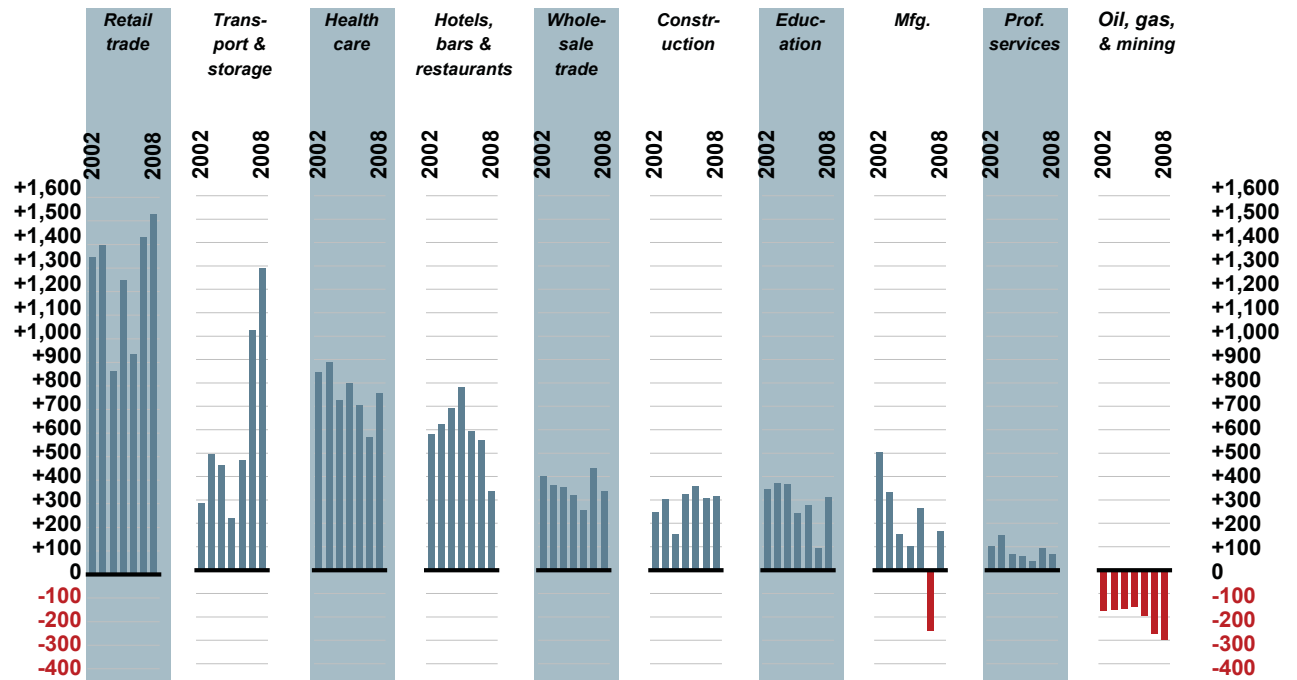
## DEMOGRAPHICS

The net flow of commuters into the Purchase Region to work in manufacturing plants has declined in recent years as local manufacturing job losses in the region have mounted.

The region pulls in a significant net inflow of commuters who work in the retail and healthcare sectors. In recent years, inbound commuting for the transportation & warehousing sector has increased sharply as well.

The largest net outbound commuting flow is in the oil, gas, & mining sector.

**Figure A.13 | Net commuter inflow to (outflow from) the Purchase Region by industry**  
*Commuting balances for selected industries in the region, 2002-2008*



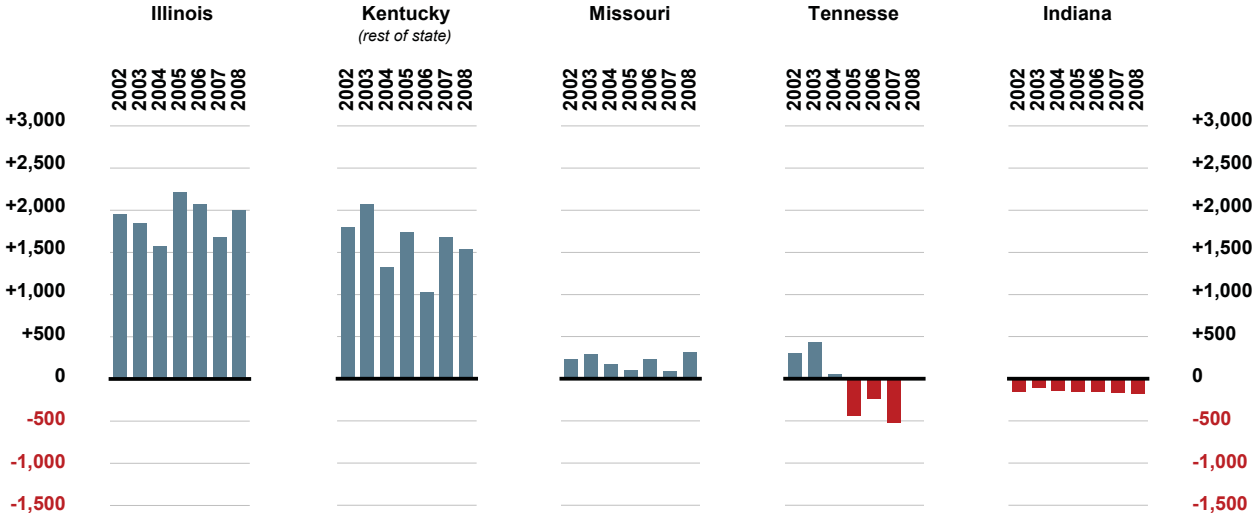
SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008



DEMOGRAPHICS

Figure A.14 | Net commuter inflow to (outflow from) the Purchase Region by state

Commuting balances for selected states, 2002-2008



The Purchase Region pulls in a net inflow of workers from Illinois and other parts of Kentucky.

The net commuter flows between the eight-county region and other surrounding states (Missouri, Tennessee, and Indiana) are considerably smaller.

SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008



## ECONOMY

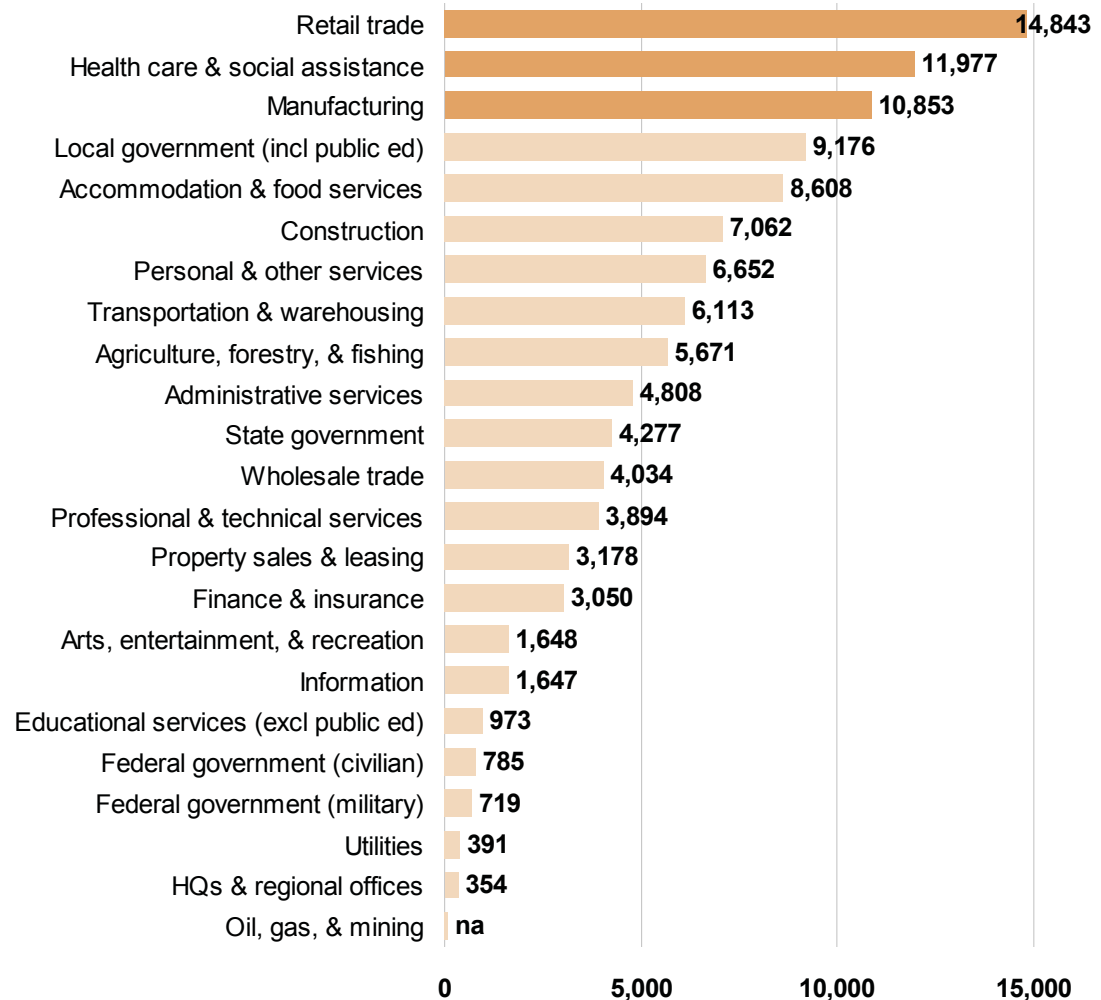
Manufacturing is one of only three industry sectors providing the Purchase Region with more than 10,000 jobs. (Note: The two largest sectors, healthcare and retail, are also the ones that are steadily “importing” commuters.)

The transportation & warehousing sector combined with wholesale trade contribute another 10,000 jobs to the region.

In total, the region supports more than 25,000 jobs in heavy industries like manufacturing, distribution and construction, implying the presence of an extensive labor force in production, building, and goods-moving activities.

Figure A.15 | Purchase Region’s 2009 job base by industry sector

*Manufacturing is one of only 3 sectors providing more than 10,000 jobs*



SOURCES: EMSI, Spring 2010 forecast

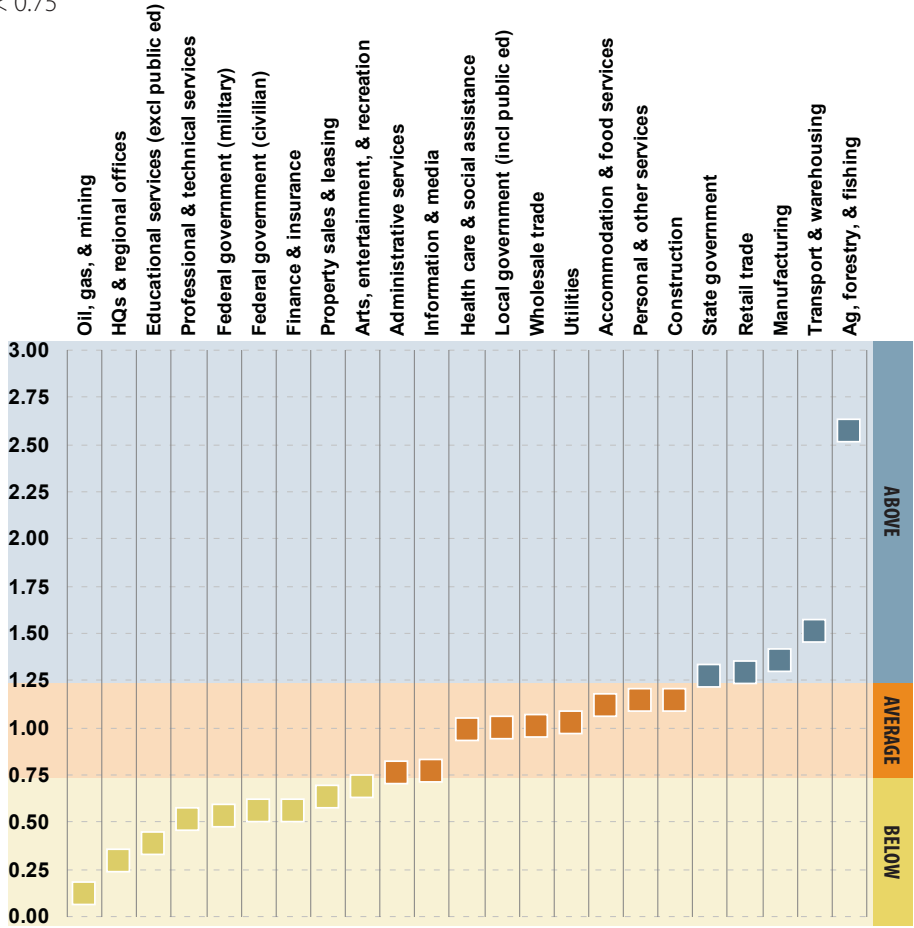


ECONOMY

Figure A.16 | Industry sector concentrations

Location quotient analysis

US average for each industry = 1.00  
 Regional strength > 1.25  
 Regional weakness < 0.75



Farming, transportation & warehousing, and manufacturing all show very strong location quotients (see below) in the Purchase Region.

The lowest location quotients are in industries often associated more with urban areas. These include professional services, finance/insurance, real estate, and corporate headquarters.

*A location quotient (LQ) is calculated as a local industry's share of total local employment divided by the same industry's share of employment at the national level. If the local industry and national industry are perfectly proportional, the location quotient will be 1.00. If an industry is heavily concentrated at the local level (the automotive industry in Detroit, technology in Silicon Valley, gambling in Las Vegas are some examples), then the location quotient will be higher than 1.00. Conversely, if the industry is sparsely concentrated at the local level (for example, farming in New York City, convention tourism in North Dakota), then the location quotient will be lower than 1.00.*

SOURCES: US Bureau of Labor Statistics

## ECONOMY

Figure A.17 | Purchase Region Counties at a Glance

	BALLARD	CALLOWAY	CARLISLE	FULTON	GRAVES	HICKMAN	MARSHALL	MCCRACKEN
<b>Population, 2009 estimate</b>	8,161	36,348	5,209	6,814	37,719	4,851	31,200	65,880
Change from 2000 Census	▼ 1.5%	▲ 6.4%	▼ 2.7%	▼ 12.1%	▲ 1.9%	▼ 7.8%	▲ 3.6%	▲ 0.6%
Share of region's population, 2009	4.2%	18.5%	2.7%	3.5%	19.2%	2.5%	15.9%	33.6%
<b>Age structure (projected net change, 2010-2030):</b>	<b>+575</b>	<b>+2,657</b>	<b>+326</b>	<b>+508</b>	<b>+2,802</b>	<b>+306</b>	<b>+2,449</b>	<b>+5,828</b>
Youth (under 20)	-21	-32	-29	-15	-39	-34	-70	+213
Young adults (20 to 34)	-7	+105	-14	+1	+30	-18	-6	+242
Experienced working age (35 to 64)	-221	-632	-157	-167	-815	-162	-781	-1,110
Senior (65 and older)	+823	+3,215	+525	+688	+3,626	+519	+3,305	+6,482
<b>Total employment (2009, complete)</b>	<b>4,329</b>	<b>21,439</b>	<b>1,921</b>	<b>3,417</b>	<b>16,873</b>	<b>1,825</b>	<b>15,180</b>	<b>45,814</b>
Agriculture, natural resources, & mining	13.7%	5.1%	21.2%	6.5%	9.7%	25.4%	5.1%	1.2%
Construction	8.1%	5.7%	9.9%	2.8%	5.4%	4.8%	10.5%	5.7%
Education and health services	5.0%	5.4%	6.9%	9.7%	13.7%	9.8%	5.9%	16.9%
Financial activities	4.6%	4.8%	8.3%	6.3%	6.1%	5.8%	5.7%	5.7%
Government	10.2%	23.3%	12.3%	17.1%	12.1%	15.1%	12.4%	9.8%
Information	2.1%	1.1%	—	0.7%	1.1%	0.6%	1.0%	2.0%
Leisure and hospitality	2.7%	8.9%	2.8%	5.9%	5.7%	3.2%	11.2%	11.5%
Manufacturing	13.9%	10.7%	3.5%	9.1%	12.3%	6.4%	16.2%	6.4%
Other services	7.4%	5.4%	10.4%	5.1%	6.5%	6.9%	7.4%	5.3%
Professional and business services	15.6%	6.2%	8.2%	4.4%	7.4%	7.7%	6.5%	9.5%
Trade, transportation, and utilities	16.6%	23.2%	16.3%	32.3%	20.0%	14.2%	18.0%	26.0%
<b>Unemployment rate</b>								
Current (April 2010, preliminary)	8.9%	8.4%	9.1%	12.9%	10.1%	9.1%	10.7%	8.9%
Annual average (2009)	9.9%	8.2%	8.5%	13.5%	9.7%	8.9%	10.7%	8.7%

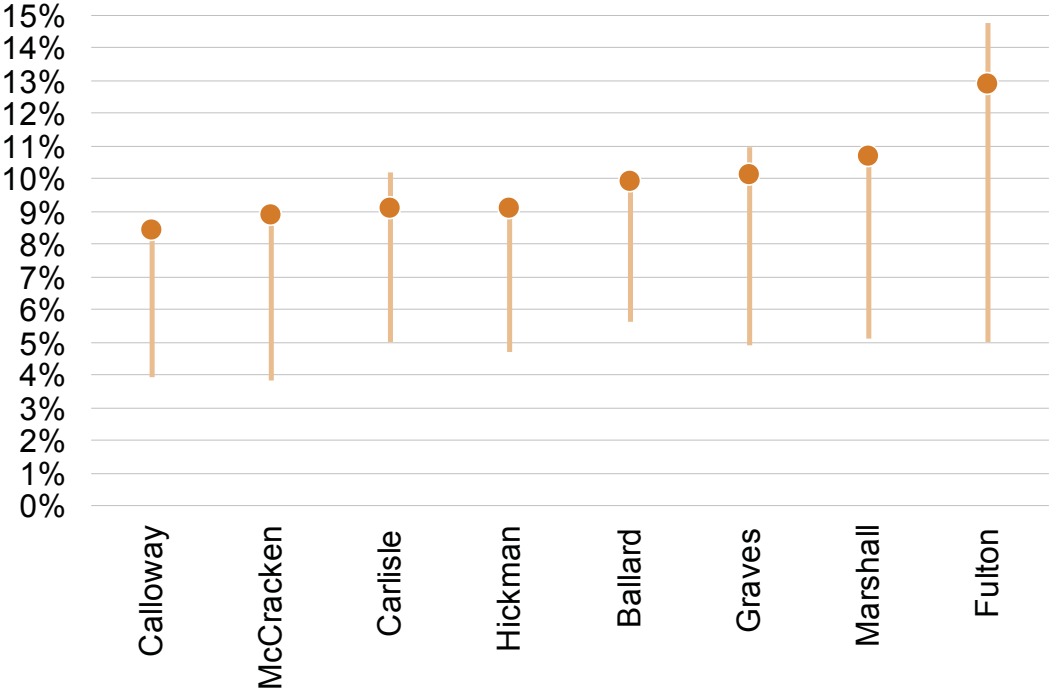
SOURCES: US Census Bureau, EMSI, US Bureau of Labor Statistics



ECONOMY

Figure A.18 | Average annual unemployment rate, 1990-2009 (%)

2009 unemployment rate in the context of the historical 20-year range



Average annual unemployment rates in the Purchase Region in 2009 ranged from 8.4 percent in Calloway County to 12.9 percent in Fulton County.

Across all counties in the region, unemployment was at or near the top of its 20-year historical range.

Above-average unemployment rates underscore the presence in the region of a surplus industrial labor force that is currently underutilized.

SOURCES: US Bureau of Labor Statistics

## ECONOMY

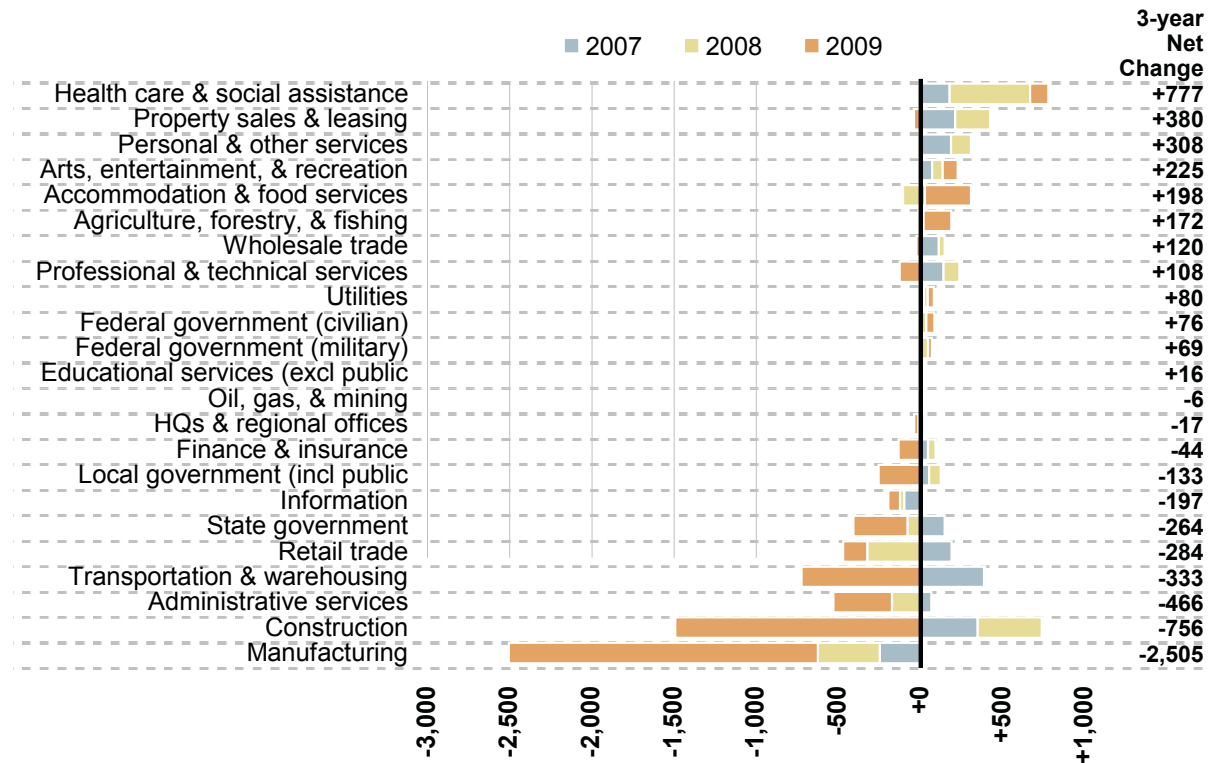
The recession that swept the country in 2008 and 2009 had its worst effects in the Purchase Region's blue-collar sectors like manufacturing, construction, and transportation/warehousing.

The manufacturing sector alone lost more than 2,500 jobs between 2007 and 2009.

Healthcare continues to be the region's most dependable growth sector, with a net of more than 750 jobs added since 2007.

Figure A.19 | Purchase Region industry job trends, 2007 through 2009

*Local job losses weighed heaviest on blue-collar industries in 2009*



SOURCES: EMSI, Spring 2010 forecast

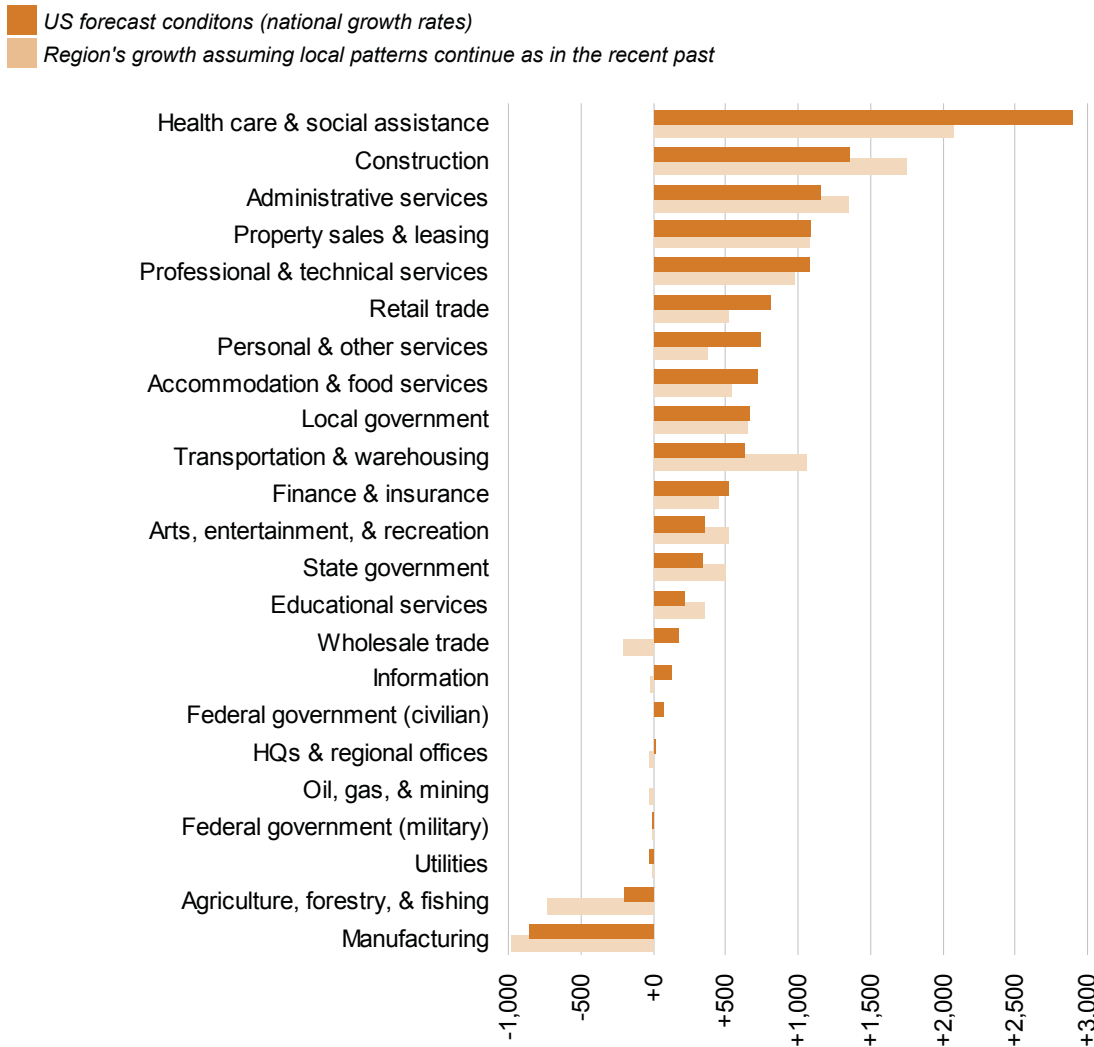




ECONOMY

Figure A.20 | Industry sector scenarios, 2009 to 2019

Purchase Region's growth under two different assumptions



SOURCES: US Bureau of Labor Statistics

Two scenarios are presented here. One assumes the region's growth over the next ten years will follow similar patterns as it has in past years. The other assumes the region will grow at rates more in line with the US forecast.

The differences in the two scenarios are notable. The Purchase Region is weighted heavily in declining industries like manufacturing and agricultural, but transportation, warehousing, and construction look poised for a comeback that is significantly stronger than the US.

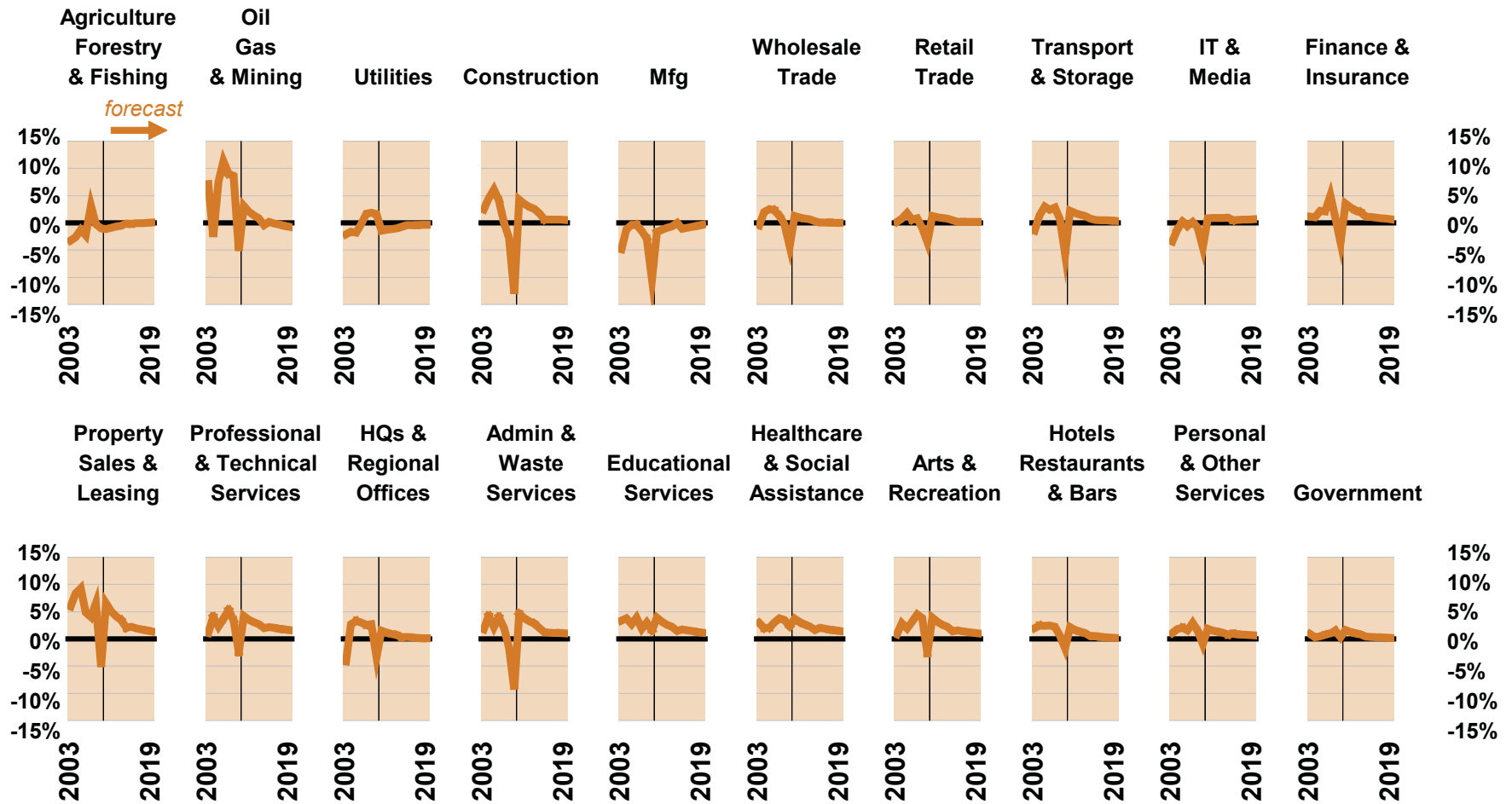
Under the US scenario, the healthcare sector would grow significantly faster.

Figure A.21 (next page) shows job growth forecasts and recent job growth histories for most major US industry sectors. Only a few sectors, like educational services and healthcare, squeak through the 2003-2019 period with consistent annual growth. Other sectors, like energy and construction, are highly volatile across economic cycles.

## ECONOMY

Figure A.21 | US outlook by economic sector

National job growth history (2003-2009) and forecast (2010-2019)

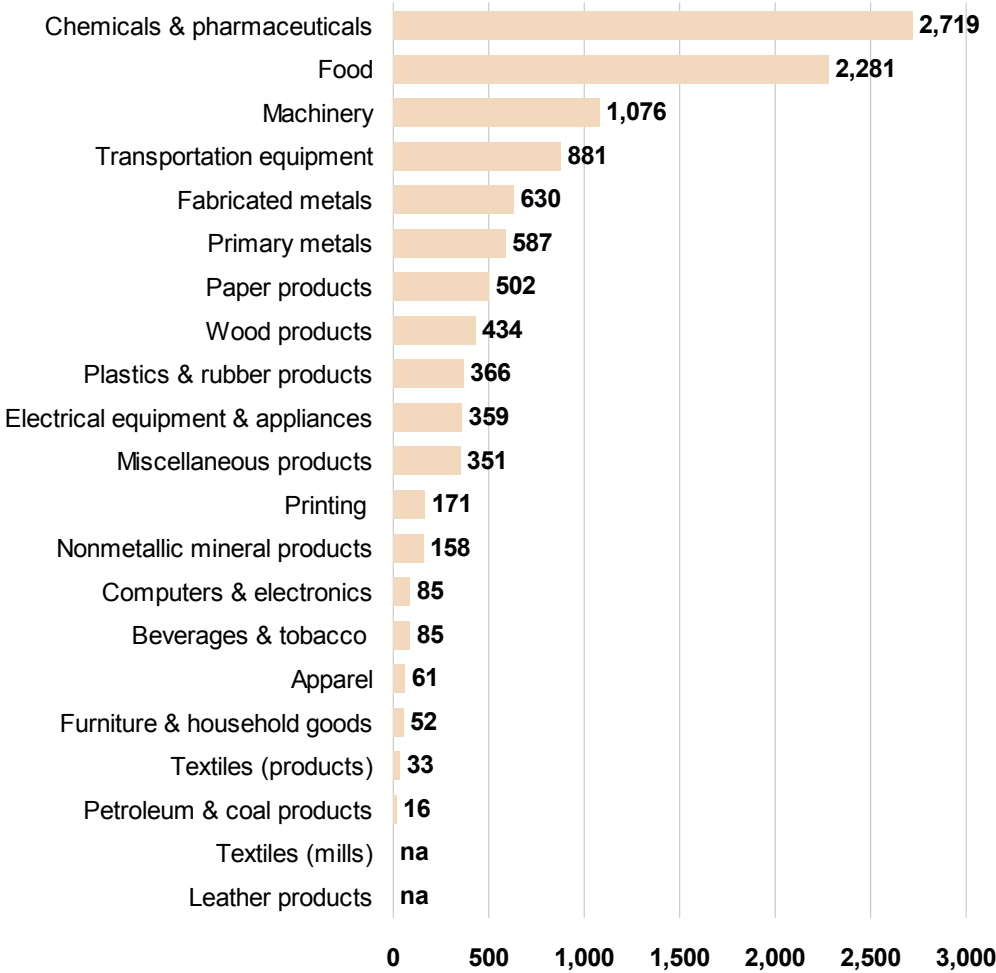


SOURCES: EMSI, Spring 2010 forecast



ECONOMY

Figure A.22 | 2009 manufacturing job base by industry  
*Chemical-related production is region's top manufacturing employer*



Chemicals & pharmaceuticals and food processing are the only two manufacturing industries providing the Purchase Region with more than 2,000 total jobs. Machinery is the third largest manufacturing industry with over 1,000 jobs.

The eight-county region also supports several hundred more jobs in the production and fabrication of basic materials like metals, wood, paper, and plastics.

SOURCES: US Bureau of Labor Statistics

## ECONOMY

Figure A.23 shows location quotients for individual industries within the manufacturing sector.

Not surprisingly, the manufacturing industries with the most jobs in the Purchase Region — chemicals, food processing, and machinery — all have above average LQs, as do some of the material processing sectors like primary metals, wood, and paper products.

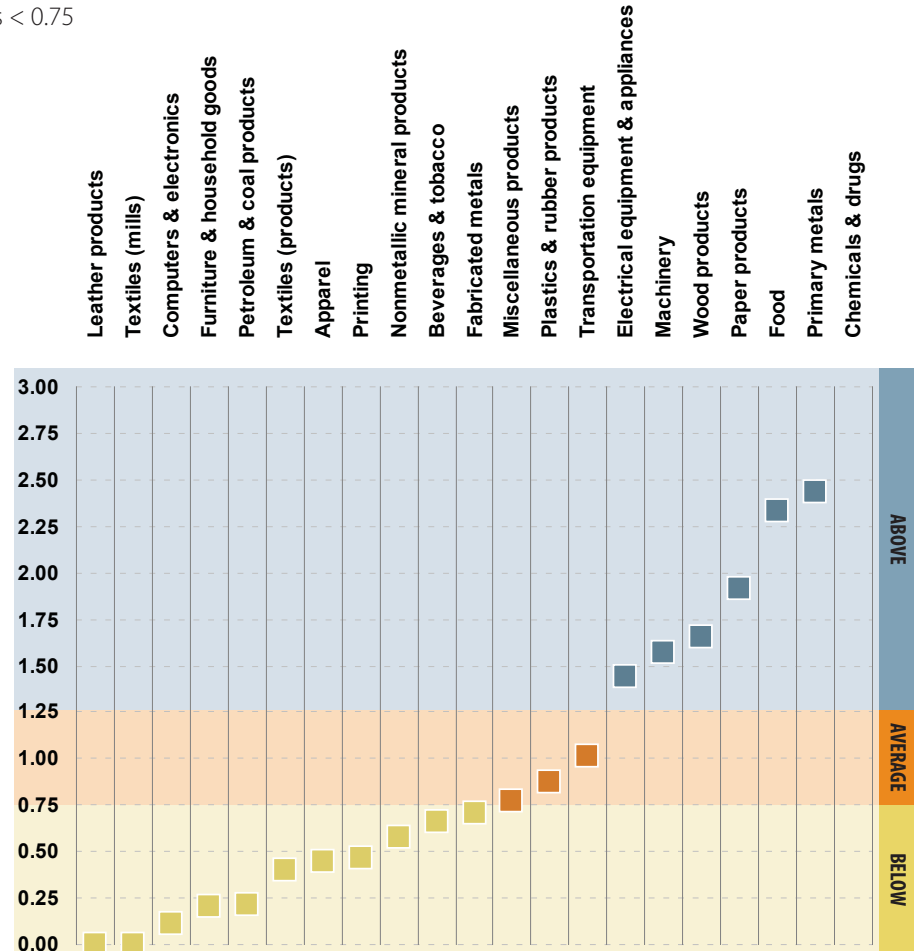
Figure A.23 | Manufacturing industry concentrations

### Location quotient analysis

US average for each industry = 1.00

Regional strength > 1.25

Regional weakness < 0.75

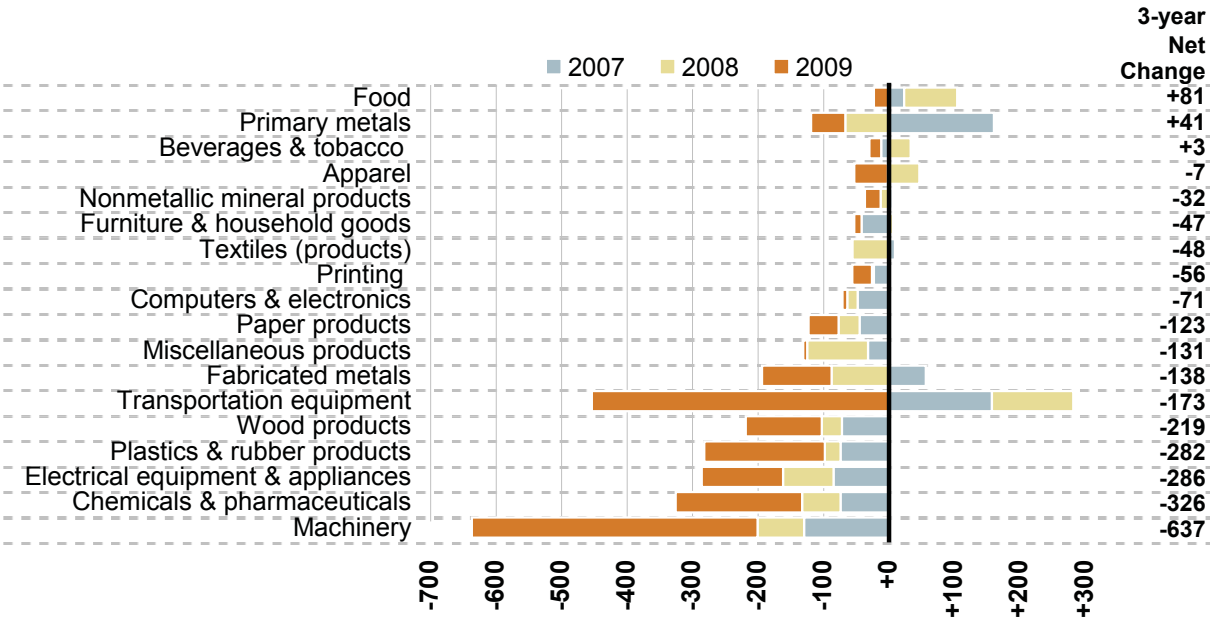


SOURCES: EMSI, Spring 2010 forecast



ECONOMY

Figure A.24 | Manufacturing industry job trends, 2007 through 2009  
 Local job losses fell hard on the chemical and transport equipment industries in 2009



The machinery industry has taken an especially strong hit to employment over the past three years, as have chemicals, electrical equipment & appliances, plastics, wood, and paper products.

The local transportation equipment industry (which includes auto parts production) had fared well in 2007 and 2008, but employment fell abruptly in 2009.

The Purchase Region’s manufacturing downturn has been lightest for the food processing industry.

SOURCES: US Bureau of Labor Statistics



## ECONOMY

**Figure A.25** presents two scenarios of future growth for the region's manufacturing industries. One scenario is based on past local trends, the other is based on the ten-year US forecast growth rates by industry.

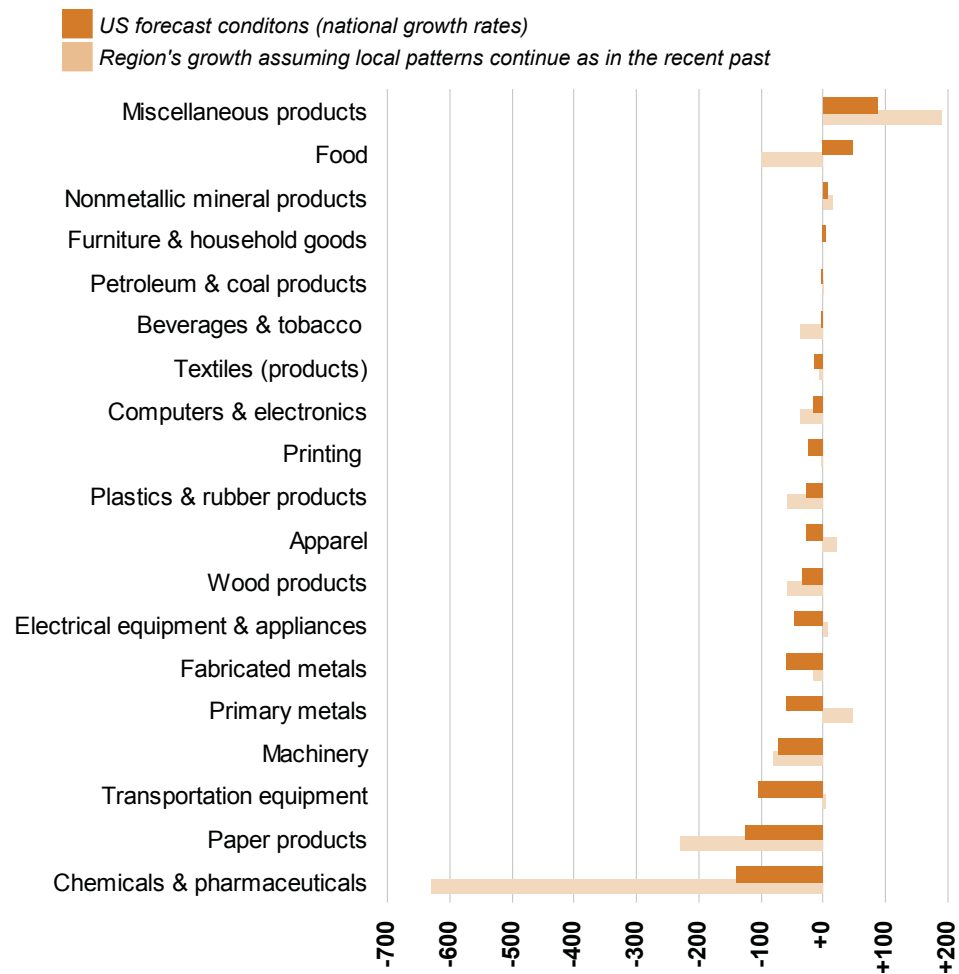
The national forecast suggests that job losses in the local chemical and paper products industries will be less severe in the next 10 years than past local patterns imply, but nonetheless, significant job losses are expected regardless of their intensity.

Often overlooked, miscellaneous manufactured products (which includes medical equipment and sporting goods, among other things) appears poised for growth under both scenarios.

**Figure A.26** provides an overview of historic and projected growth patterns for manufacturing industries at the national level.

**Figure A.25 | Manufacturing industry scenarios, 2009 to 2019**

*Purchase Region's growth under two different assumptions*

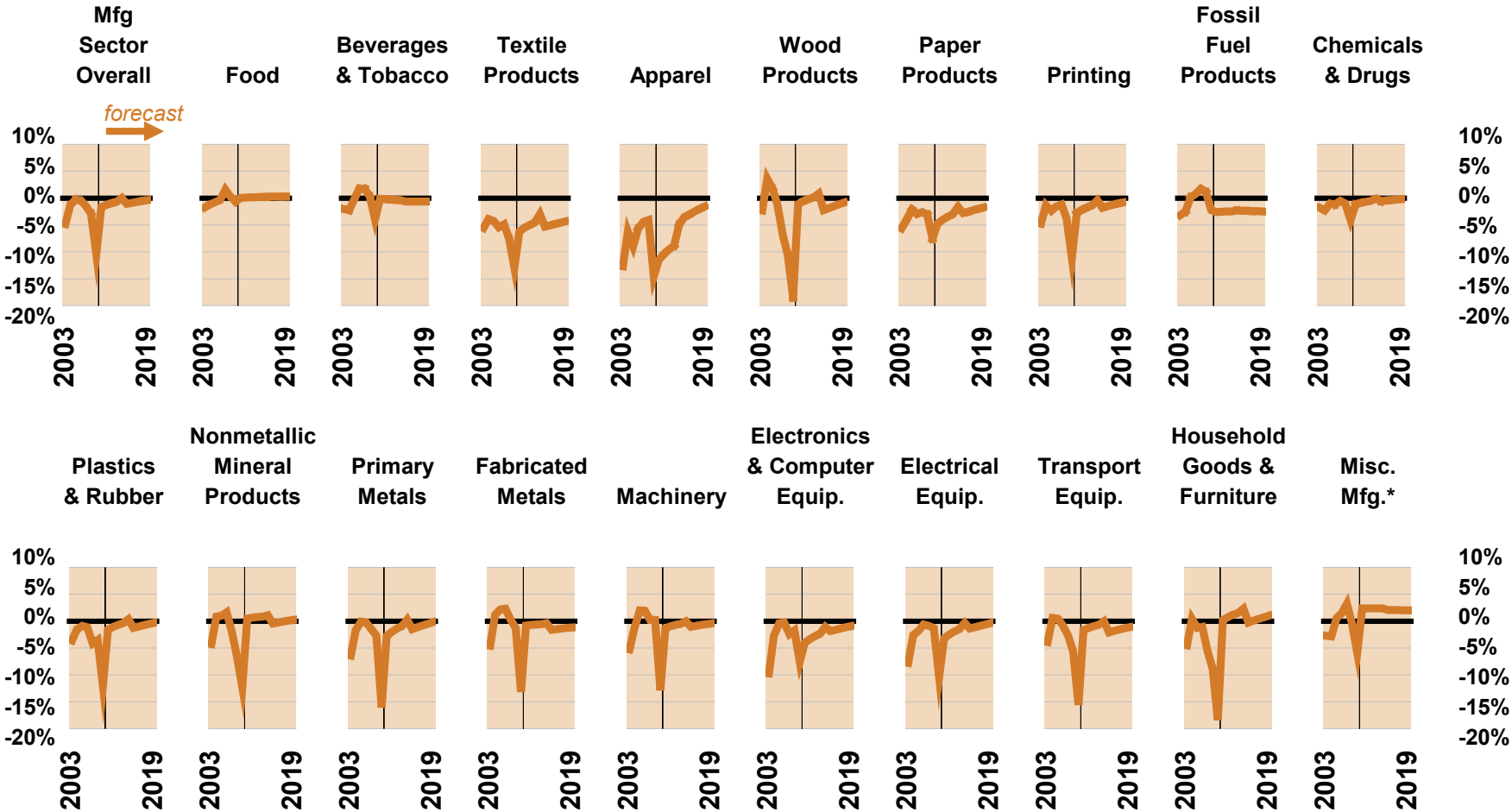


SOURCES: EMSI, Spring 2010 forecast. NOTE: Miscellaneous manufacturing includes medical equipment & supplies, sporting goods, jewelry, toys & games, non-paper office supplies, & caskets



ECONOMY

Figure A.26 | US manufacturing outlook by industry sector  
 National job growth history (2003-2009) and forecast (2010-2019)



SOURCES: US Bureau of Labor Statistics

## WORKFORCE

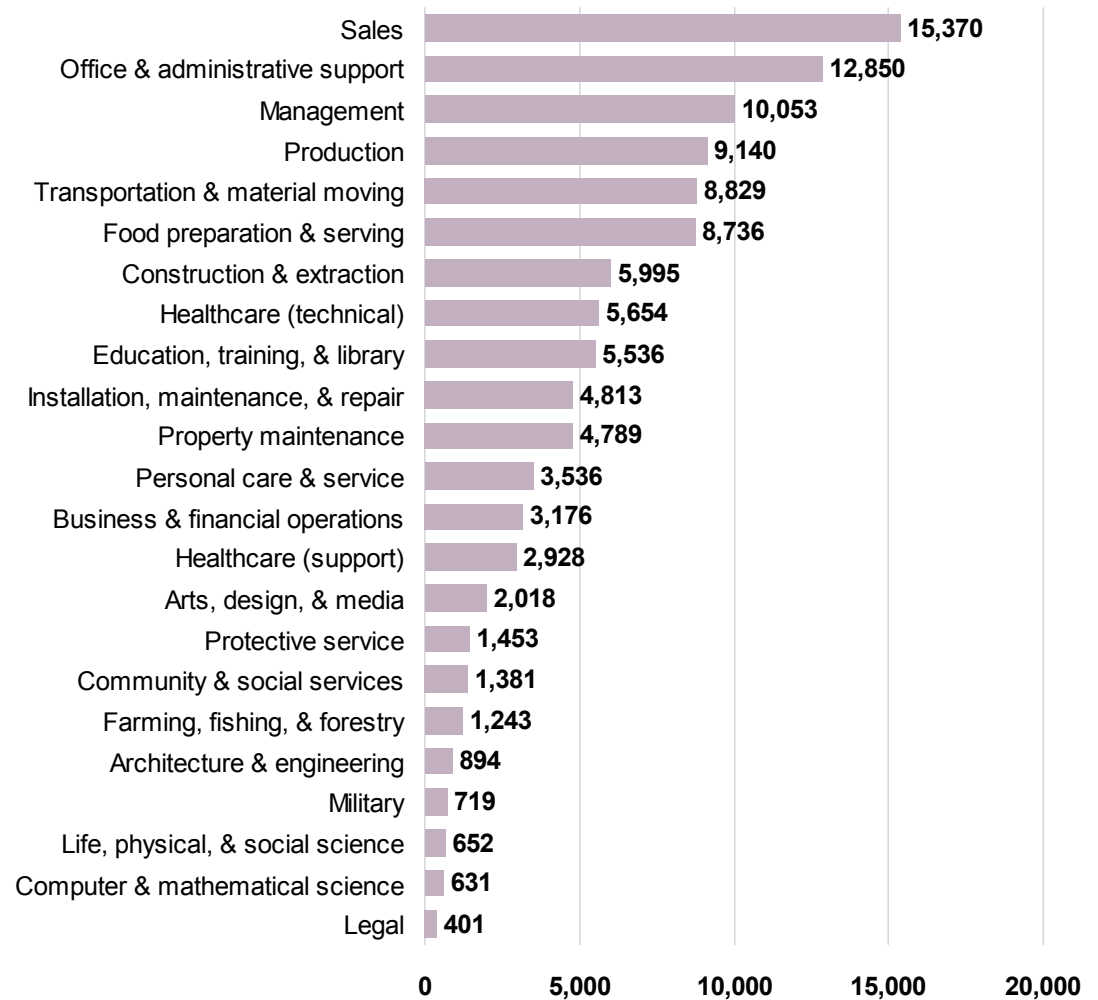
The Purchase Region’s core blue-collar occupational groups — production and transportation & material moving — together comprise close to 20,000 workers.

One point of clarification: Self-employed farmers and ranchers are classified under management occupations rather than farming, thus the apparent discrepancies in the sizes of these two groups.

The high-paying, highly educated occupational groups like science, engineering, computers, and law, each have fewer than 1,000 jobs in the eight-county region.

**Figure A.27 | Purchase Region 2009 job base by occupational group**

*Core blue-collar occupations total nearly 20,000 jobs*



SOURCES: EMSI, Spring 2010 forecast



WORKFORCE

Figure A.28 | Industry sector concentrations

Location quotient analysis

US average for each industry = 1.00  
 Regional strength > 1.25  
 Regional weakness < 0.75

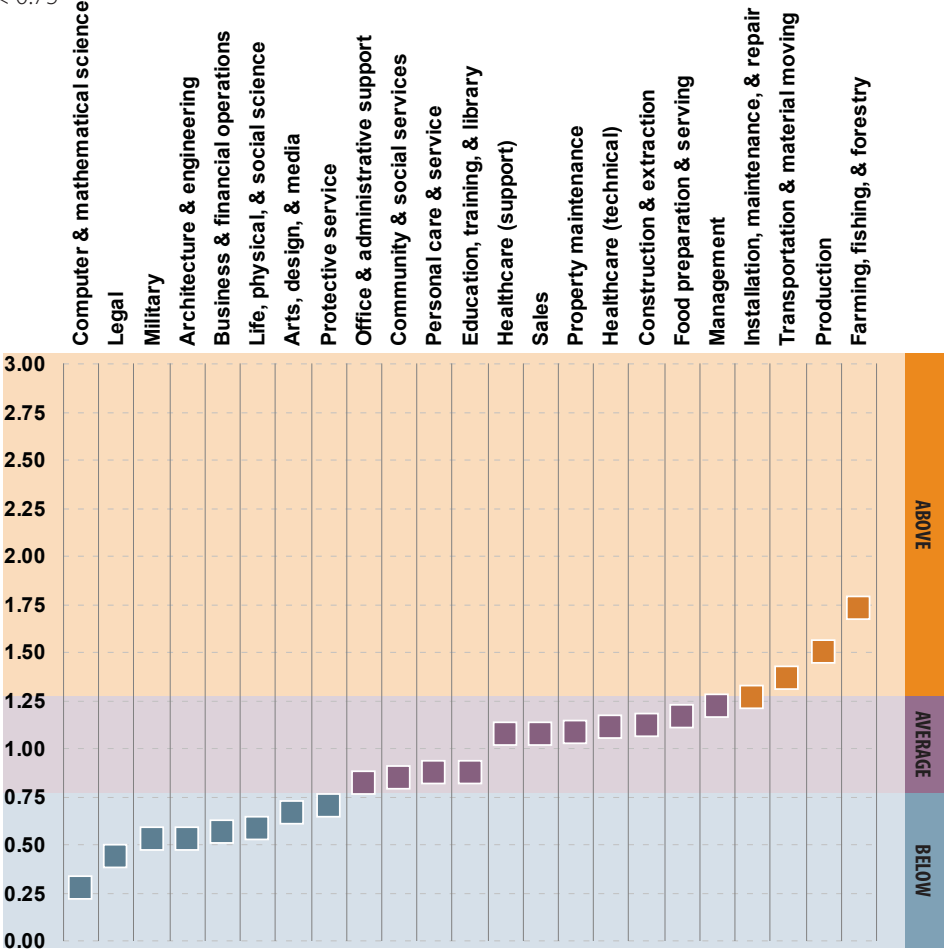


Figure A.28 provides location quotients for the region’s major occupational groups.

Farming, production, transport & material moving, and installation & repair rank among the region’s highest occupational location quotients.

Below average LQs, however, characterize occupations in computer technology, law, engineering, finance, science, and design.

SOURCES: EMSI, Spring 2010 forecast

## WORKFORCE

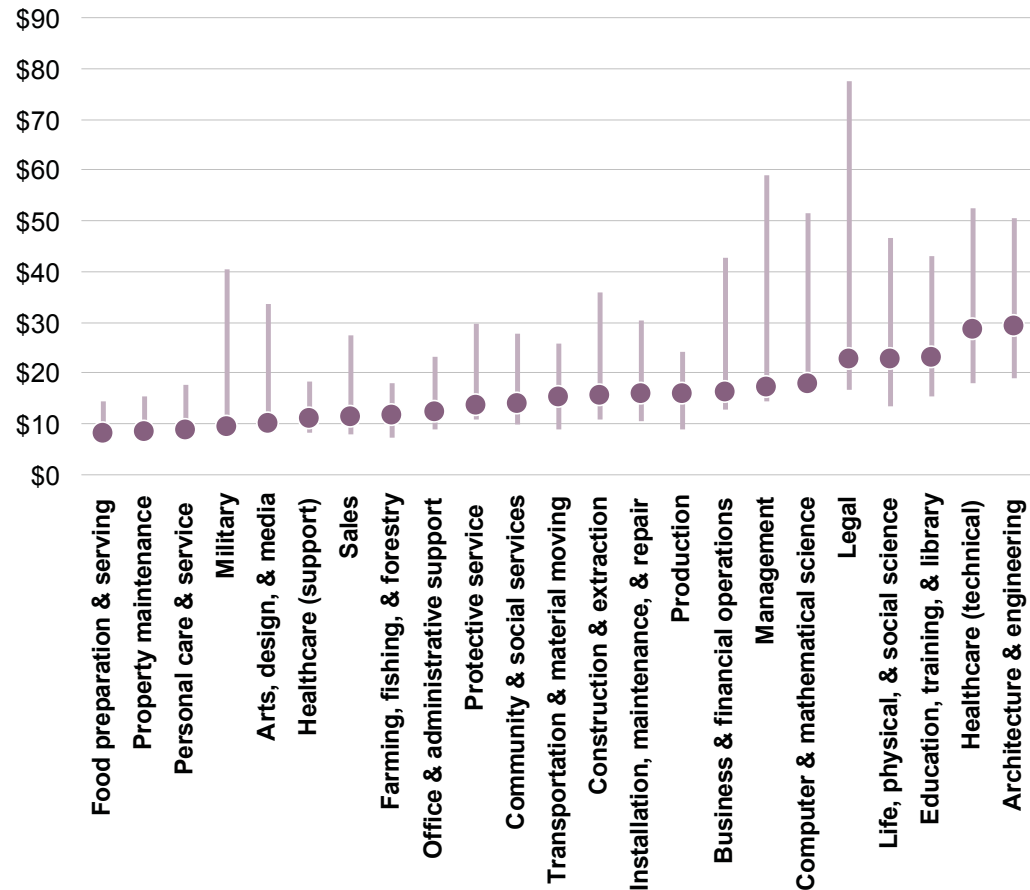
**Figure A.29** presents the local median wage for each occupational group within the context of the national pay range. Those employed in transportation and material moving occupations in the region tend to earn a median of about \$15 per hour. Nationwide, however, the range is from a low (10th percentile) of \$9 per hour to a high (90th percentile) of about \$25 per hour.

For the Purchase Region overall, median wages fall near the bottom of the national range. An exception lies in some of the skilled professions like science, engineering, and healthcare, which appear to command a higher local premium than other occupations.

**Figure A.29 | Median hourly wage rate by occupational group**

*Local median wage presented in the context of the national wage range*

Dot represents the local median; line represents the national range between the 10th and 90th percentiles



SOURCES: EMSI, Spring 2010 forecast

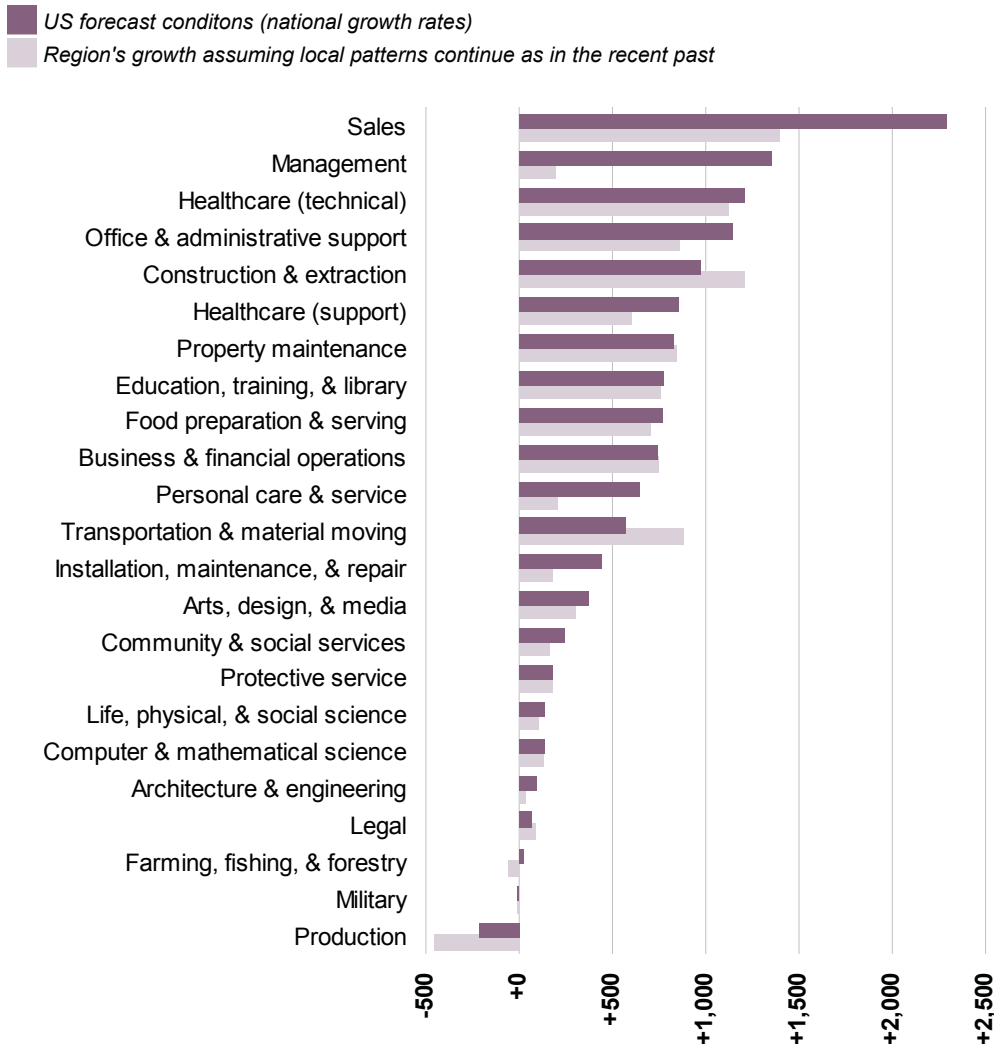




WORKFORCE

Figure A.30 | Occupational group scenarios, 2009 to 2019

*Purchase Region's growth under two different assumptions*



The two scenarios for occupational growth presented in **Figure A.30** look remarkably different. With the exception of construction and transportation, most occupational groups fare better under the US-growth rate scenario than under the one that assumes past local patterns.

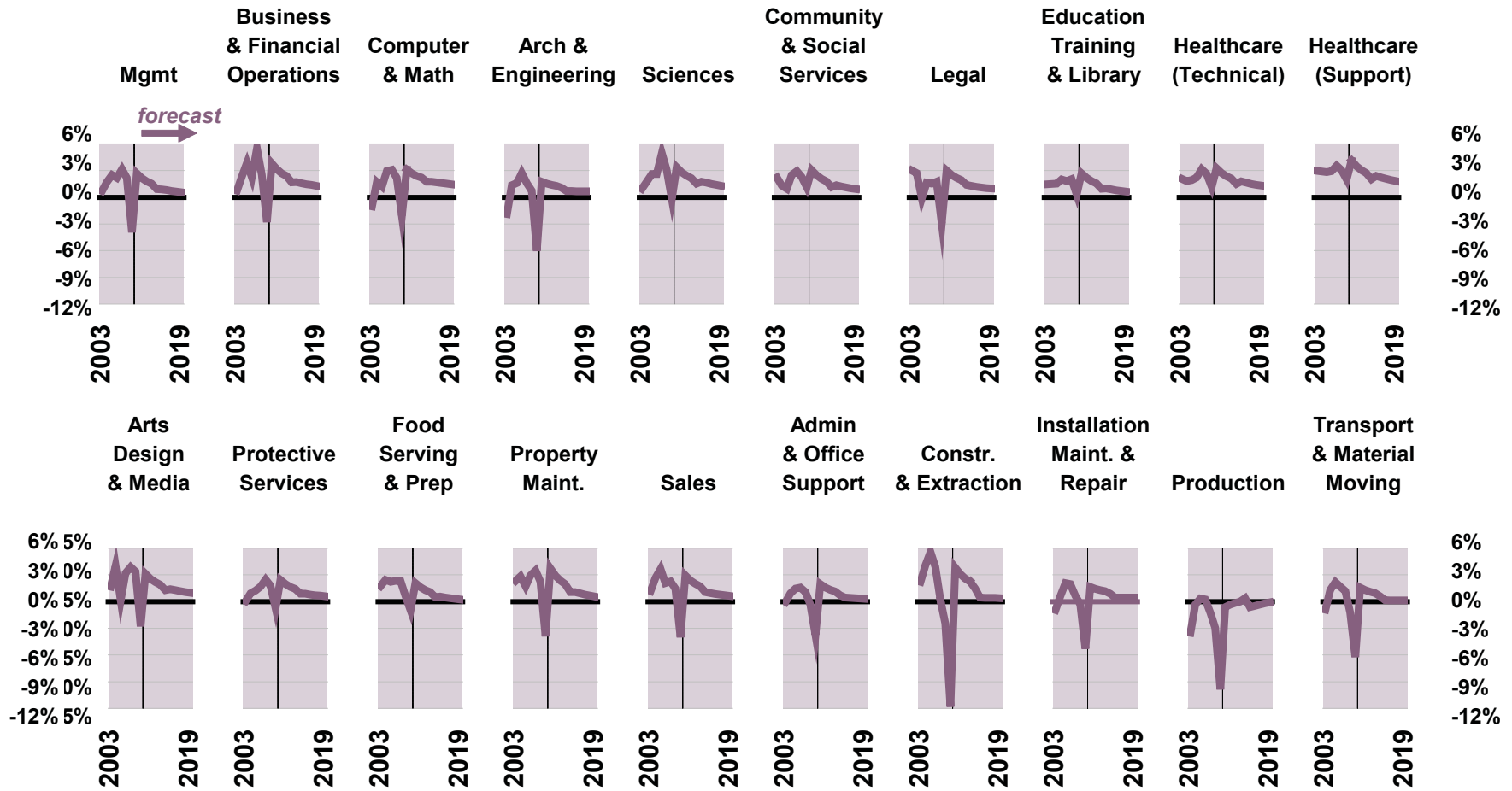
The forecast decline for production occupations (approaching 500 jobs) implies that the region's already existing surplus of trained production workers will increase further.

SOURCES: EMSI, Spring 2010 forecast

## WORKFORCE

Figure A.31 | US outlook by occupational group

National job growth history (2003-2009) and forecast (2010-2019)

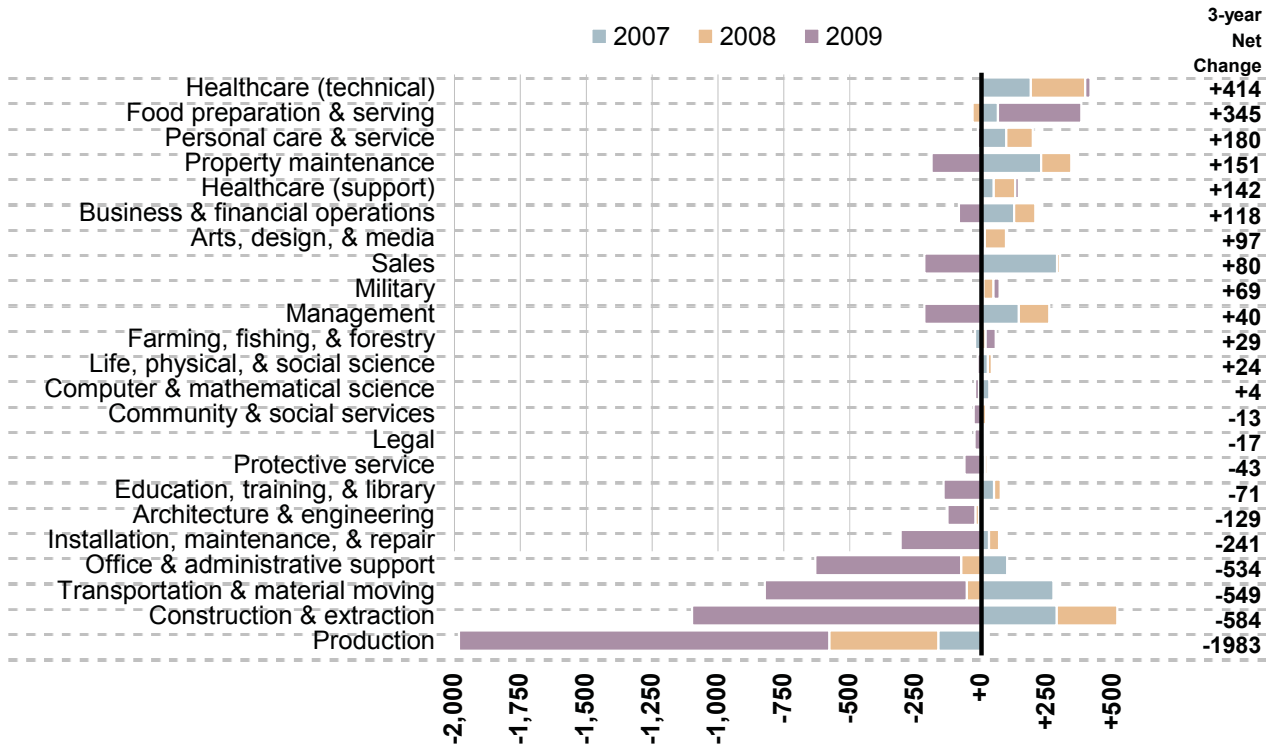


SOURCES: EMSI, Spring 2010 forecast



WORKFORCE

**Figure A.32 | Purchase Region occupational job trends, 2007 through 2009**  
*Blue-collar occupations have suffered disproportionately heavy job losses in recent years*



**Figure A.31** (previous page) shows the US outlook by occupation.

- Construction and production occupations have suffered the most volatility in this economic cycle.
- Prospects for national job growth in the decade ahead will be steadiest in skilled fields like computers, science, and healthcare.
- After an initial rebound, some of the occupational groups with the heaviest job losses will see growth taper off again.

**Figure A.32** shows recent trends for the Purchase Region by occupation:

- Service-oriented occupations have fared best through the recession years, especially healthcare workers.
- Job losses in blue collar sectors like production, construction, transportation, and maintenance mounted rapidly in 2009.

SOURCES: EMSI, Spring 2010 forecast

WORKFORCE

Figures A.33 through A.36 provide an analysis of the six occupational groups with the greatest job losses

From these six groups we focus on the 32 individual occupations in which at least 30 local jobs had been lost in the past year. We then sorted these into two groups. The first group includes 23 occupations in which jobs lost in 2009 are not expected to be regained within a five-year time-frame.

The second group includes the remaining nine occupations which should be better positioned for recovery in five years or less.

Figure A.33 | Purchase Region occupations that lost ≥30 jobs in 2009, Part 1

*Most are not expected to recover quickly*

Code	Occupations unlikely to recover in 5 years	Jobs lost in 2009 in the 8-county region
51-2092	Team assemblers	-358
51-4121	Welders, cutters, solderers, & brazers	-166
47-2031	Carpenters	-161
51-4041	Machinists	-121
47-2111	Electricians	-118
53-5011	Sailors & marine oilers	-114
53-7062	Freight, stock, & material movers	-96
47-2152	Plumbers, pipefitters, & steamfitters	-96
53-5021	Captains, mates, & pilots of water vessels	-87
43-6014	Secretaries, except legal, medical, & executive	-83
51-1011	Supervisors of production & operating workers	-82
47-2141	Painters, construction & maintenance	-82
51-6031	Sewing machine operators	-63
49-9042	Maintenance & repair workers, general	-52
53-7051	Industrial truck & tractor operators	-48
53-3033	Truck drivers, light or delivery services	-48
51-9011	Chemical equipment operators & tenders	-47
51-9061	Inspectors, testers, sorters, & weighers	-43
51-9198	Helpers--Production workers	-42
49-9041	Industrial machinery mechanics	-36
51-2099	Assemblers & fabricators, all other	-35
49-3023	Automotive service technicians & mechanics	-31
51-9041	Extruding machine setters & operators	-30

Code	Modest chance of recovery within 5 years	Jobs lost in 2009 in the 8-county region
53-3032	Truck drivers, heavy & tractor-trailer	-159
47-1011	Supervisors of construction & extraction workers	-133
47-2061	Construction laborers	-133
49-9021	Heating, A/C, & refrigeration mechanics	-60
43-3031	Bookkeeping, accounting, & auditing clerks	-58
43-6011	Executive secretaries & administrative assistants	-54
43-9061	Office clerks, general	-48
47-3015	Assistant pipelayers, plumbers, & pipefitters	-30
43-1011	Supervisors of office & admin support workers	-30

SOURCES: EMSI, Spring 2010 forecast



## WORKFORCE

Figure A.34 | Purchase Region occupations that lost ≥30 jobs in 2009, Part 2

*Several are highly concentrated in the region relative to the US*

Code	Occupations unlikely to recover in 5 years	LQ
53-5011	Sailors & marine oilers	23.90
51-9011	Chemical equipment operators & tenders	23.21
53-5021	Captains, mates, & pilots of water vessels	16.37
51-4121	Welders, cutters, solderers, & brazers	2.93
49-9041	Industrial machinery mechanics	2.83
51-9041	Extruding machine setters & operators	2.80
51-2092	Team assemblers	2.34
51-4041	Machinists	1.94
51-6031	Sewing machine operators	1.63
49-3023	Automotive service technicians & mechanics	1.55
53-7051	Industrial truck & tractor operators	1.52
51-1011	Supervisors of production & operating workers	1.46
53-3033	Truck drivers, light or delivery services	1.40
47-2111	Electricians	1.31
47-2141	Painters, construction & maintenance	1.14
43-6014	Secretaries, except legal, medical, & executive	1.12
51-2099	Assemblers & fabricators, all other	1.12
47-2031	Carpenters	1.09
47-2152	Plumbers, pipefitters, & steamfitters	1.04
51-9198	Helpers--Production workers	1.02
49-9042	Maintenance & repair workers, general	0.99
53-7062	Freight, stock, & material movers	0.97
51-9061	Inspectors, testers, sorters, & weighers	0.93

Code	Modest chance of recovery within 5 years	LQ
53-3032	Truck drivers, heavy & tractor-trailer	2.12
47-3015	Assistant pipelayers, plumbers, & pipefitters	1.78
47-1011	Supervisors of construction & extraction workers	1.34
49-9021	Heating, A/C, & refrigeration mechanics	1.10
47-2061	Construction laborers	1.01
43-6011	Executive secretaries & administrative assistants	1.00
43-3031	Bookkeeping, accounting, & auditing clerks	0.97
43-1011	Supervisors of office & admin support workers	0.84
43-9061	Office clerks, general	0.51

Of the total 32 at-risk occupations we identified in the Purchase Region, most have average or above-average location quotients.

Three occupations have exceptionally high location quotients. These include captains and marine workers involved in river transportation as well as chemical equipment operators.

SOURCES: EMSI, Spring 2010 forecast

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Of the 32 at-risk occupations, most have median local wages of between \$10 and \$20 per hour. A few — including two of the three occupations with the highest location quotients — command even higher wages.

Across most of the at-risk occupations, local median wages fall near the middle or in the lower half of the national wage range.

There is less correlation than might be expected between wage rates (**Figure A.35**) and education and training levels (**Figure A.36**, next page).

**Figure A.35 | Purchase Region occupations that lost ≥30 jobs in 2009, Part 3**

**Local median wage presented in the context of the national wage range**

Dark shading represents local median; light-shaded bar represents US range between the 10th & 90th percentiles

Code	Occupations unlikely to recover in 5 years	Median Hourly	\$0	\$10	\$20	\$30	\$40	\$50
53-5021	Captains, mates, & pilots of water vessels	32.83						
51-9011	Chemical equipment operators & tenders	24.97						
51-1011	Supervisors of production & operating workers	24.71						
47-2152	Plumbers, pipefitters, & steamfitters	24.63						
51-4041	Machinists	22.08						
47-2111	Electricians	20.76						
49-9041	Industrial machinery mechanics	20.65						
51-4121	Welders, cutters, solderers, & brazers	17.63						
51-9041	Extruding machine setters & operators	17.48						
53-5011	Sailors & marine oilers	17.01						
51-9198	Helpers--Production workers	15.44						
51-9061	Inspectors, testers, sorters, & weighers	15.41						
49-9042	Maintenance & repair workers, general	14.95						
47-2031	Carpenters	13.9						
47-2141	Painters, construction & maintenance	13.57						
53-7051	Industrial truck & tractor operators	13.54						
53-3033	Truck drivers, light or delivery services	12.72						
49-3023	Automotive service technicians & mechanics	12.7						
51-2092	Team assemblers	12.27						
43-6014	Secretaries, except legal, medical, & executive	10.64						
51-2099	Assemblers & fabricators, all other	9.46						
51-6031	Sewing machine operators	9.15						
53-7062	Freight, stock, & material movers	8.93						
<b>Code Modest chance of recovery within 5 years</b>								
43-1011	Supervisors of office & admin support workers	16.75						
47-1011	Supervisors of construction & extraction workers	16.64						
53-3032	Truck drivers, heavy & tractor-trailer	15.2						
49-9021	Heating, A/C, & refrigeration mechanics	14.91						
47-2061	Construction laborers	14.08						
43-6011	Executive secretaries & administrative assistants	14.06						
47-3015	Assistant pipelayers, plumbers, & pipefitters	12.97						
43-3031	Bookkeeping, accounting, & auditing clerks	12.6						
43-9061	Office clerks, general	9.94						

SOURCES: EMSI, Spring 2010 forecast





## WORKFORCE

Figure A.36 | Purchase Region occupations that lost ≥30 jobs in 2009, Part 4

*The identified occupations typically rely on work experience and on the job training*

Colored squares represent the 11 levels of standard skills/training as defined by the US Bureau of Labor Statistics

Code	Occupation name	Minimum required Training/skill level		
		Low	High	
49-3023	Automotive service technicians & mechanics	■ ■ ■ ■ ■ □ □ □ □ □		Postsecondary vocational award
53-5021	Captains, mates, & pilots of water vessels	■ ■ ■ ■ □ □ □ □ □ □		Work experience in a related field
51-1011	Supervisors of production & operating workers	■ ■ ■ ■ □ □ □ □ □ □		Work experience in a related field
47-1011	Supervisors of construction & extraction workers	■ ■ ■ ■ □ □ □ □ □ □		Work experience in a related field
43-1011	Supervisors of office & admin support workers	■ ■ ■ ■ □ □ □ □ □ □		Work experience in a related field
51-4121	Welders, cutters, solderers, & brazers	■ ■ ■ ■ □ □ □ □ □ □		Long-term on-the-job training
47-2031	Carpenters	■ ■ ■ □ □ □ □ □ □ □		Long-term on-the-job training
51-4041	Machinists	■ ■ ■ □ □ □ □ □ □ □		Long-term on-the-job training
47-2111	Electricians	■ ■ ■ □ □ □ □ □ □ □		Long-term on-the-job training
47-2152	Plumbers, pipefitters, & steamfitters	■ ■ ■ □ □ □ □ □ □ □		Long-term on-the-job training
49-9041	Industrial machinery mechanics	■ ■ ■ □ □ □ □ □ □ □		Long-term on-the-job training
49-9021	Heating, A/C, & refrigeration mechanics	■ ■ ■ □ □ □ □ □ □ □		Long-term on-the-job training
51-2092	Team assemblers	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
43-6014	Secretaries, except legal, medical, & executive	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
47-2141	Painters, construction & maintenance	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
51-6031	Sewing machine operators	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
49-9042	Maintenance & repair workers, general	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
51-9011	Chemical equipment operators & tenders	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
51-9061	Inspectors, testers, sorters, & weighers	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
51-2099	Assemblers & fabricators, all other	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
51-9041	Extruding machine setters & operators	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
53-3032	Truck drivers, heavy & tractor-trailer	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
47-2061	Construction laborers	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
43-3031	Bookkeeping, accounting, & auditing clerks	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
43-6011	Executive secretaries & administrative assistants	■ ■ □ □ □ □ □ □ □ □		Moderate-term on-the-job training
53-5011	Sailors & marine oilers	■ □ □ □ □ □ □ □ □ □		Short-term on-the-job training
53-7062	Freight, stock, & material movers	■ □ □ □ □ □ □ □ □ □		Short-term on-the-job training
53-7051	Industrial truck & tractor operators	■ □ □ □ □ □ □ □ □ □		Short-term on-the-job training
53-3033	Truck drivers, light or delivery services	■ □ □ □ □ □ □ □ □ □		Short-term on-the-job training
51-9198	Helpers--Production workers	■ □ □ □ □ □ □ □ □ □		Short-term on-the-job training
43-9061	Office clerks, general	■ □ □ □ □ □ □ □ □ □		Short-term on-the-job training
47-3015	Assistant pipelayers, plumbers, & pipefitters	■ □ □ □ □ □ □ □ □ □		Short-term on-the-job training

The 32 occupations primarily rely on work experience or on-the-job training.

Only one of these occupations, automotive technicians, typically requires postsecondary training. Despite its training needs, this occupation is not among the highest wage rates of the group. Nationally, wage rates for this occupation extend up to as much as \$30 per hour, however, Purchase Region workers in this occupation earn substantially less.

By the same token, the list includes some relatively high wage occupations that require only moderate on-the-job training. Chemical equipment operators and tenders is an example, along with plumbers, pipefitters and steamfitters.

SOURCES: EMSI, Spring 2010 forecast

## WORKFORCE

For those 23 most at-risk occupations, the opportunities are limited. For these occupations, we have identified the specific industries which most often employ them. We've separated this "best fit" analysis into two groups. The first looks at manufacturing industries only. The next focuses on non-manufacturing industries.

Some of these cross-referenced industries may seem redundant with existing or troubled industries. Others may offer some opportunities for hope. In some cases where direct replacement is unlikely, retraining or career counseling may prove a better option.

**Figure A.37 | Connecting surplus labor to "best fit" industries**

***Manufacturing industries most likely to need region's surplus talent***

Industries by row; occupations in columns



SOURCES: EMSI, Spring 2010 forecast

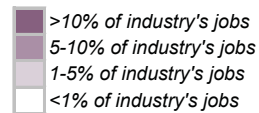


WORKFORCE

Figure A.38 | Connecting surplus labor to “best fit” industries

**Non-manufacturing industries most likely to need region’s surplus talent**

Industries by row; occupations in columns



**Most impacted occupations ?**

**Industries that match skills ?**



SOURCES: EMSI, Spring 2010 forecast

The analysis at-risk occupational opportunities continues here with non-manufacturing industries. While many of the occupations recently lost do not transfer as easily to non-manufacturing, there are in fact a better mix of growth industries where their skills may fit.



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