

# *Chapter IV*

## *Industry Assessment*

### 4.1 Overview

An important component of the York County vision for economic development is focused efforts to attract, retain, and expand firms in target industry clusters. As such, YCEA has prepared an industry cluster assessment pinpointing three (3) categories of targets: current strengths (strong performers nationally and current County specializations), high priority retention targets (lagging performers nationally but current County specializations), and emerging strengths (strong performers nationally but not currently County specializations).

Profiling these industries in terms of their key characteristics, workforce and site needs is an important step in order to identify which of the County's current conditions support the attraction of these industries. This analysis also sets the stage for the preparation of strategies to enhance business attraction, expansion, and retention activities.

### 4.2 Industry Cluster Targets

The clusters represented in YCEA's original baseline study included those defined by the Commonwealth Center for Workforce Information and Analysis in their report "Pennsylvania's Targeted Industry Clusters." This Industry Assessment Chapter includes a review of ten (10) different clusters. While these clusters do not incorporate all of York County's industries, they do represent areas of the local economy with broad impact.

Results of the 2009 York County Industry Cluster Analysis (conducted by YCEA) have been provided through:

- Shift-Share Analysis – integrated with location quotient analysis, and including more detailed assessments of clusters based on “decision tree” screening; includes more detailed classifications by industry (e.g. current strength, high priority retention target, etc.).
- Input/Output (I/O) Analysis – illustrates output impact by industry using Type II RIMS multipliers.

This assessment, which provides guidance regarding potential target industries, has been incorporated into the projected demand for future office, retail and industrial development in York County. Target industries by detailed classification and associated office, retail and industrial space include those listed in Exhibit 4-1.

<b>Exhibit 4-1: Industry Cluster Targets</b>		
<b>Current Strengths:</b> Strong National Performer, Current Local Specialization	<b>High Priority Retention Targets:</b> Lagging National Performer, Current Local Specialization	<b>Emerging Strengths:</b> Strong National Performer, Not a Current Local Specialization
<ol style="list-style-type: none"> <li>1. Advanced Materials and Diversified Manufacturing: Vehicle/Vehicle Equipment</li> <li>2. Logistics/Transportation</li> </ol>	<ol style="list-style-type: none"> <li>1. Energy</li> <li>2. Agriculture and Food Production</li> <li>3. Advanced Materials and Diversified Manufacturing: Metals/Metal Fabrication</li> <li>4. Advanced Materials and Diversified Manufacturing: Printing</li> <li>5. Building and Construction</li> </ol>	<ol style="list-style-type: none"> <li>1. Bio-Medical</li> <li>2. Health Care</li> <li>3. Business and Financial Services</li> </ol>

These industry clusters have different space requirements. In general, the industry clusters can be grouped by the following space types:

**Industrial Space**

- Advanced Materials and Diversified Manufacturing: Vehicle and Vehicle Equipment
- Bio-Medical
- Energy
- Logistics and Transportation
- Agriculture and Food Production
- Advanced Materials and Diversified Manufacturing: Metals and Metal Fabrication
- Advanced Materials and Diversified Manufacturing: Printing
- Building and Construction

**Office Space**

- Health Care
- Business and Financial Services

**Other Space (e.g. Agricultural and Institutional)**

- Agriculture and Food Production
- Health Care

Knowledge of the growth prospects of these industry cluster targets, along with data on other industries, was used to form analyses of the office, industrial, and retail markets in Chapter V.

To provide insight into the needs of target industry clusters, a snapshot of each industry, including an overview definition, the outlook for that industry at different geographic scales (e.g. Nation, Commonwealth, and County), and key workforce and site selection criteria of firms in the industry has been updated. This information is presented in the following sections by industry cluster.

**4.3 Advanced Materials and Diversified Manufacturing: Vehicle and Vehicle Equipment**

*Current Strength*

**Industry Overview**

The vehicle and vehicle equipment manufacturing industry includes those firms engaged in the production of vehicles and equipment for transport, including automobiles and automobile parts, locomotives, trucks, motorcycles, aircraft and ships for both civilian and military use. Processes involved in production overlap with other manufacturing industries, and include welding, cutting, assembling, and other production techniques.

According to the Bureau of Labor Statistics, the United States vehicle and vehicle equipment industry represents approximately 1.5 million jobs in a variety of occupations, from production workers (including team assemblers; welders, cutters, solderers, and brazers; first-line supervisors; machinists; and coil winders, tapers, and finishers) to engineers (including mechanical, electrical and aerospace), designers and project managers. In November 2008, employment numbers were similar to 2013 as demonstrated in Exhibit 4-2, yet the wage rate was \$24.30 per hour. This represents an increase of approximately 3.8% per year on average. Exhibit 4-3 details the wage and employment information in the vehicle and vehicle equipment manufacturing top occupations.

<b>Exhibit 4-2: National Overview Vehicle and Vehicle Equipment Manufacturing</b>		
North American Industry Classification System (NAICS) Code	336	336
Employment	1.5 Million U.S. November 2008	1.5 Million U.S. August 2013
Wage Rate	\$24.30/hr U.S. November 2008	\$29.33/hr U.S. August 2013

*Source: Bureau of Labor Statistics, Industries at a Glance, Transportation Equipment Manufacturing: NAICS 336*

**Exhibit 4-3: Top Occupations – May 2012  
Vehicle and Vehicle Equipment Manufacturing**

Standard Occupational Code (SOC)	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
51-2092	Team Assemblers	1,006,980	\$13.29	\$14.38	\$29,910	.6%
51-4121	Welders, Cutters, Solderers, and Brazers	329,710	\$17.45	\$18.46	\$38,410	.3%
51-4041	Machinists	388,370	\$18.99	\$19.65	\$40,860	.4%
51-1011	First-Line Supervisors/Managers of Production and Operating Workers	568,820	\$25.98	\$27.61	\$57,420	.2%
51-2021	Coil Winders, Tapers, and Finishers	143,000	\$14.83	\$15.39	\$32,000	1.4%

*Source: Bureau of Labor Statistics, Industries at a Glance, Transportation Equipment Manufacturing: NAICS 336*

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## Outlook

### National

According to the U.S. Bureau of Labor Statistics, at the national level, employment in vehicle and vehicle equipment manufacturing is expected to slightly increase over the next decade. The increasingly global nature of competition in the industry has led to a constant need for increased productivity and the use of new technologies. The resulting increased emphasis on lean manufacturing, characterized by streamlined employment and enhanced productivity, is anticipated to contribute to increased employment, particularly in production occupations. Production occupations are expected to increase 2.4% by 2020. In contrast, the need for engineers is expected to decrease 2.4% by 2020 as the industry continues to demand streamlined production techniques. Economic census data from 1997 to 2007 (the most recent year for which Economic Census data has been released) illustrates that employment in transportation equipment manufacturing decreased by nearly 263,000 workers, from 1.8 million in 1997 to 1.5 million in 2007. Though employment decreased, shipments increased as productivity rose, from \$575 billion worth of shipments in 1997 to \$746 billion in 2007.

### Pennsylvania

Pennsylvania has recently experienced a decline in vehicle manufacturing employment. In Pennsylvania, as of 2001, there were an estimated 52,000 employees in vehicle and vehicle equipment manufacturing firms. By 2006, the number of employees had decreased again to 45,000, a 13% drop, and showed another drop from 2006 to 2012 to 39,472, another 13%

decrease. The average annual wage for the Advanced Materials and Diversified Manufacturing industry cluster in 2009 was \$52,267 for Pennsylvania.

### York County

The Advanced Materials and Diversified Manufacturing cluster experienced many changes in workforce needs over the last ten (10) years due to rapid advancements in production technology. Demand for employees with skills beyond manual dexterity is increasing for production-level positions. Businesses are looking for employees with communication and math skills to fill general positions, such as team assembler. This provides flexibility to train employees to work in teams and perform multiple tasks. Also, this may require a technical degree for some entry-level positions. In order to keep pace with the rapid changes in technology, a flexible workforce with ongoing training programs is important and necessary to the success of business.

Although employment is decreasing and gains in productivity are being experienced, the retirement of the existing workforce over the next ten (10) years will create demand for younger workers. Skilled production workers and those with some type of higher education, particularly with two (2) year degrees in mechanical or electrical technology, and broad skills (e.g. communication, basic math, and problem solving) are preferred by employers.

In fact, York County is the number one County in the Commonwealth for vehicle and vehicle equipment manufacturing. Harley-Davidson Motor Company, which has assembled motorcycles at its York facility since 1973, provides much of York County's employment in this sub-cluster. BAE Systems, another top employer in this sub-sector, assembles armored vehicles for the military's use in Iraq and Afghanistan.

### **York County's Competitive Position: Key Strengths**

1. York County's existing strength in vehicle and vehicle equipment manufacturing, characterized by employers such as Harley Davidson, offers a solid foundation from which to expand the industry.
2. The area offers a local workforce with core manufacturing skills needed by vehicle and vehicle equipment manufacturers.
3. York County is part of the broader mega-region of Philadelphia, Baltimore, and Washington, DC, which affords it access to the human capital (i.e. highly educated workers) in the mega-region. This human capital is a necessary ingredient for vehicle and vehicle equipment research and development to support related manufacturers in York County.
4. York County is a relatively affordable location within the broader mega-region for manufacturing expansion, making it desirable for cost-conscious manufacturers.

## 4.4 Bio-Medical

### *Current Strength*

#### **Industry Overview**

Bio-medical firms produce new therapies, vaccines, and the technologies behind new medicines and processes. The bio-medical sub-cluster includes a variety of industries and sub-industries, from a number of manufacturing types (e.g. pharmaceutical and medicine manufacturing and manufacturing of laboratory and medical office equipment manufacturing) to professional, scientific, and technical services (e.g. physical, engineering and biological research and social science and humanities research) and ambulatory health care services (e.g. medical laboratories and diagnostic imaging centers).

Pharmaceutical and medicine manufacturing firms, a sub-cluster of Bio-Medical, employ an estimated 248,400 in the United States, according to the U.S. economic census of 2007 (the most recent year for which detailed industry data is available). The bio-medical industry employs scientists, engineers, technicians, sales representatives, medical secretaries, and team assemblers (the latter being common in most manufacturing firms). As shown in Exhibit 4-4, employment numbers in the bio-medical industry are similar to 2013, although the wage rate increased in each of the sub-categories. Exhibit 4-5 details the wage rate and employment information for May 2012 in the bio-medical top occupations.

<b>Exhibit 4-4: National Overview Bio-Medical</b>		
NAICS Codes	3254, 3391, 6215, 5471, 333314, 334510	3254, 3391, 6215, 5471, 333314, 334510
Employment	857,600 – NAICS 325 U.S. December 2007	794,900 – NAICS 325 U.S. December 2013
Wage Rate	Varies by Industry – November 2008 \$19.86 for Chemical Manufacturing \$15.46 for Misc. Manufacturing \$28.20 for Professional, Scientific & Technical Services \$20.62 for Ambulatory Health Care Services	Varies by Industry – August 2013 \$21.49 for Chemical Manufacturing \$23.69 for Misc. Manufacturing \$36.47 for Professional, Scientific & Technical Services \$29.60 for Ambulatory Health Care Services

*SOURCE: Bureau of Labor Statistics, Industries at a Glance, Chemical Manufacturing: NAICS 325; Miscellaneous Manufacturing: NAICS 339; Professional, Scientific & Technical Services: NAICS: 54; Ambulatory Health Care Services: NAICS 621*

**Exhibit 4-5: Top Occupations – May 2012  
Bio-Medical**

SOC	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
19-4021	Biological Technicians	72,740	\$19.11	\$20.48	\$42,600	.6%
43-6013	Medical Secretaries	509,640	\$15.07	\$15.71	\$32,670	.3%
41-4011	Sales Representatives, Technical Products	364,830	\$36.04	\$41.20	\$85,690	.7%
51-2092	Team Assemblers	1,006,980	\$13.29	\$14.38	\$29,910	.6%

Source: Bureau of Labor Statistics

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage.

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## Outlook

### National

Growth prospects are high for the bio-medical industry, as demand for new medicines has increased and is expected to continue to increase as the population ages. While many manufacturing sectors are expected to continue to shed jobs as industries transition to streamlined production methods, pharmaceutical and medicine manufacturers continue to add jobs. Illustrative of this trend, Ambulatory Health Care Services NAICS code 621, employment grew from 4.8 million workers in 2003 to nearly 6.4 million workers in 2013. The rate of employment growth in Ambulatory Health Care Services over the next ten (10) years is expected to be similar to the previous ten (10). Projections by the Bureau of Labor and Statistics project a growth of 44.5% by the year 2020. Additionally, employment of pharmacy technicians is expected to increase by 32% from 2010 to 2020, much faster than the average for other specific occupations in this sector.

The bio-medical industry is less susceptible to national economic downturns than other industries. As such, it should withstand the current recession as the population continues to age and public and private health insurance programs continue to evolve.

### Pennsylvania

According to the Center for Workforce Information & Analysis, Pennsylvania, while initially slow to capitalize on its advantages in the biotechnology fields, has grown in recent years,

especially in the southeast. Most notably, Montgomery County has an employment concentration in this cluster five (5) times the national average. Many state-of-the-art, postsecondary research and development programs, and an abundance of pharmaceutical companies, make Pennsylvania a perfect incubator for growing biomedical and life science firms. The technological demands of these fields require an educated and creative workforce.

The largest portion of occupations in the Bio-Medical cluster is held by physicians and surgeons, primarily employed by medical laboratories and imaging centers, followed by biological technicians. The pharmaceutical preparation manufacturing, research and development in biotechnology, and research and development in the physical, engineering, and life sciences industries accounted for more than 55% of this cluster's jobs. Top bio-medical employers in Pennsylvania in 2008 included Merck & Company Incorporated, Wyeth-Ayerst Pharmaceuticals, SmithKline Beecham Corporation, Sanofi Pasteur, and Quest Diagnostics.

### York County

In the 2009 Cluster Analysis (the most recent data available), York County's Bio-Medical cluster made up 1% of the labor force, employing 1,553 people. The location quotient for this cluster was 0.16 and 134 jobs were added between 2006 and 2009.

The location quotient (LQ) is a measure of the concentration of an industry in the local economy. If the LQ is greater than 1, it suggests that the local industry is more concentrated locally than in the comparison economy (state or nation), and there may be some competitive advantage. For instance, if a LQ is more than 1, products and services from that industry are being exported out of York County. If the LQ is less than 1, it indicates that the industry may not be as strong locally as in the comparison economy. Therefore, businesses and people in York County need to import products and services in that industry from outside the County's geographic boundaries.

According to the shift-share analysis, the Bio-Medical cluster was a lagging performer, with limited prospects due to declining competitiveness, in comparison to the State and nation. However, the location quotient indicates that there may be potential for future growth. York County was also ranked the most cost effective location in the Northeastern and Mid-Atlantic United States for medical device manufacturing in a 2011 Boyd Company study.

Firms with a concentration in medical devices in the County include, but are not limited to, dental equipment and supplies manufacturing, dental laboratories manufacturing, electro-medical and electrotherapeutic, ophthalmic goods manufacturing, pharmaceutical preparation manufacturing, and surgical appliance and supplies manufacturing.

## York County's Competitive Position: Key Strengths

1. York County has an existing base of bio-medical firms from which to grow.
2. York County's location, relatively close to major concentrations of bio-medical firms in Montgomery and Chester Counties outside Philadelphia, offers a competitive advantage.
3. The County, as part of the broader mega-region that includes Philadelphia, Baltimore, and Washington, DC, has access to world-class research universities, Federal laboratories, and a highly-educated workforce needed for bio-medical expansion.
4. York County is cost-advantaged vis-à-vis the region, with lower-cost land and real estate, which is desirable to larger-scale, established pharmaceutical manufacturers.
5. York County's manufacturing workforce provides the skills needed for production workers involved in pharmaceutical manufacturing.

### 4.5 Energy

#### *Current Strength*

#### **Industry Overview**

The Energy cluster includes industries associated with the production and distribution of energy, as well as the waste disposal industries associated with the remediation and environmental cleanup related to energy production. The Energy cluster includes a wide variety of industries, from petroleum refineries to battery manufacturing to generator manufacturing. Brief summaries of each of the main sources of renewable energy are offered below:

- Solar power: Solar power generation comes from two (2) key technologies: solar photovoltaics (PV) and solar thermal/concentrated solar power. Solar cells, which use semiconductors to absorb light, are used in solar PV to convert sunlight to electricity.
- Wind power: Wind power generation systems use a wind turbine, gearbox, generator, tower and transmission equipment to harness the energy created by moving air. Across the nation, wind farms are concentrated primarily in Texas and California. The Midwestern and Western states of Iowa, Minnesota, North Dakota and South Dakota also have ambitious projects underway to store wind energy underground.
- Geothermal power: Geothermal systems convert hydrothermal fluids to electricity through dry steam, flash, or binary cycle technologies. Geothermal electricity production requires location of facilities near geothermal resources, including volcanic activity, tectonic shifting, hot springs and geysers. Most of these resources in the United States are concentrated in the Rocky Mountain West.

- **Hydroelectric power:** Hydroelectric dams harness the energy created by running water. Infrastructure to harness this particular source of energy are much more established in the United States than other sources of renewable energy, and most locations suitable for hydrodams have already been developed with such facilities.
- **Biomass and biofuels:** Biomass, also termed waste-to-energy, uses forest and agricultural wastes, municipal solid wastes, and landfill gas as fuel to power existing electrical systems. The two (2) main biofuels are ethanol and biodiesel, both of which are produced in plants. Ethanol is grain alcohol produced from corn or other crops which is blended with gasoline and used as motor fuel. Some ethanol plants are owned by groups of farmers or local investors. Biodiesel is made from vegetable oils and animal fats as an alternative to petroleum-based diesel fuel.

The Bureau of Labor Statistics has not identified NAICS codes that encompass the energy industry. Therefore, employment estimates in the energy sector are difficult to quantify. However, the Center for Workforce Information & Analysis, Pennsylvania Department of Labor & Industry, has defined the renewable energy industry cluster as a combination of manufacturing sub-industries. These include, but are not limited to, the following NAICS sectors: crude petroleum and natural gas extraction (211111); hydroelectric power generation (221111); oil and gas pipeline construction (237120); mining machinery and equipment manufacturing (333131); ethyl alcohol manufacturing (325193); petroleum refineries (324110); turbine generator and generator set units (333611); motor and generator manufacturing (335312); solid waste combustors and incinerators (562213); and utility regulation and administration (926130).

## **Outlook**

### National

Interest in renewable energy development is strong and increasing, as global demand for energy has increased and is expected to grow as population and incomes rise. The energy industry offers potential for rapid growth and development of renewable projects, as the United States transforms its energy infrastructure to become less reliant on non-renewable sources and foreign oil. Policy initiatives, including renewable portfolio standards and incentives for the siting, production, and operation of renewable energy facilities have played a major role in the emergence of the renewable energy industry. Portfolio standards mandate that utility companies include a certain proportion of power plant generation or capacity from renewable sources (e.g. California's requirement that electric companies use renewable sources to produce 20% of electricity). Most states offer incentives, through rebates or grants, for renewable energy projects. With interest in renewable energy growing, such policy initiatives should only increase in the future.

At the national level, the U.S. Census data shows that NAICS code 333611, turbine and turbine generator manufacturing, had an employment increase of 20.7% from 2002 to 2007. NAICS

code 562213, solid waste combustors and incinerators, also had an employment increase nationally of 24.6% in the same time period.

### Pennsylvania

In 2007, Pennsylvania Governor Edward G. Rendell enacted an Energy Independence Plan focused on expansion of Pennsylvania's energy production, including emphasis on development of alternative fuel and clean energy. According to the PA Department of Environmental Protection report in 2013, *Energy in Pennsylvania: Past, Present, and Future*, Pennsylvania ranks second in the U.S. in terms of electricity generation. It is also the number one exporter of electricity in the Country. The average existing wind facility in Pennsylvania generates 131,000 megawatt hours, according to a 2011 listing of 15 wind facilities in Pennsylvania.

Pennsylvania's goal is to effectively work with citizen's groups, businesses, trade organizations, local governments, and communities to help reduce pollution and save energy. Part of that effort includes encouraging the deployment and use of innovative environmental and advanced energy technologies, including renewable energy. State level programs include, but are not limited to: Keystone HELP Residential Energy Efficiency Program, Geothermal Loan Program, Green Energy Loan Fund, Growing Greener, Alternative Fuel Incentive Grant Program, Small Business Loan Program, Small Business Advantage Grant, and the Pennsylvania Energy Development Authority (PEDA). More information about these programs can be found at [www.depweb.state.pa.us](http://www.depweb.state.pa.us)

In 2013, the PA Department of Environmental Protection announced that the Pennsylvania Sunshine Solar Program will provide \$100 million in rebates to help fund solar electric (solar photovoltaic, or PV) and solar hot water (solar thermal) projects for homeowners and small businesses in Pennsylvania. As of October 25, 2013, the PA Sunshine Program had \$1,173,580 available for payment of rebates. Similar to the national level in this industry sector, the U.S. Census data shows an employment increase for the solid waste combustors and incinerators industry of 6.4% from 2002 to 2007.

### York County

According to the 2009 York County Cluster Analysis, the most recent data available, York County's Energy cluster made up 3% of the labor force, employing 3,538 people. Locally, the cluster gained employment from 2006 to 2009 with the addition of 327 jobs. The location quotient was 1.28.

When compared to the nation, the Energy cluster was a lagging performer, however, it was worth investment in resources as a high priority retention target. Thus, the Energy Cluster was a current strength when compared to the State according to the shift-share analysis. The County already contains two (2) of the nation's top hydroelectric turbine manufacturers, American Hydro and Voith Siemens Hydro, laying a solid base for growth.

## **York County's Competitive Position: Key Strengths**

1. York County is already a strong manufacturing area, with a workforce well-suited for renewable energy component production, and with two (2) of the nation's top manufacturers of hydroturbines.
2. York County is part of the broader mega-region of Philadelphia, Baltimore, and Washington, DC, and is within driving distance of its world-class research universities and Federal laboratories. Collectively, the mega-region's universities spend \$4 billion on research and development and offer 40,000 graduate students.
3. Agricultural heritage is strong in York County, and the existing base of agriculture, food production, and machinery manufacturing industries offers an advantage for biofuels production.
4. York County is already strong in metals and metal fabrication manufacturing, indicating that the County has firms and workers experienced in manufacturing of other components similar to those used in Solar energy, wind energy, and geothermal component manufacturing. These existing firms may be able to use their existing workforce to transition into the renewable energy sector.
5. New or expanding firms can take advantage of the incentives offered as part of Pennsylvania's Energy Independence Plan.
6. York County has a number of large manufacturers and logistics providers with large roof surfaces, which could provide demand for local installation of electricity-producing solar panels. This would provide firms with a reliable source of power to supplement local electric utilities.

### **4.6 Logistics and Transportation**

#### *Current Strength*

#### **Industry Overview**

Logistics and transportation firms are involved in the storage, warehousing, and distribution of goods that other industries produce. Logistical services include the management and processing of inventory. Transportation services provide distribution of inventory via multiple modes of transport (e.g. air, rail, water, road and pipeline).

According to the Bureau of Labor Statistics, in August 2013, the United States logistics and transportation industries represented approximately 4.5 million jobs in a variety of occupations (Exhibit 4-6). NAICS codes 48-49 consist of the following subsectors: Air Transportation, Rail Transportation, Water Transportation, Truck Transportation, Transit and Ground Passenger Transportation, Pipeline Transportation, Scenic and Sightseeing Transportation, Support

Activities for Transportation, Postal Services, Couriers and Messengers, and Warehousing and Storage. Exhibit 4-7 details the wage and employment information, for May of 2012, in the transportation and warehousing top occupations.

<b>Exhibit 4-6: National Overview Transportation and Warehousing</b>		
NAICS Codes	48-49	48-49
Employment	4.4 Million U.S. November 2008	4.5 Million U.S. August 2013
Wage Rate	\$18.57/hr – U.S. November 2008	\$22.36/hr – U.S. August 2013

Source: Bureau of Labor Statistics, *Industries at a Glance*

<b>Exhibit 4-7: Top Occupations – May 2012 Transportation and Warehousing</b>						
SOC	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
53-3032	Truck Drivers, heavy	1,556,510	\$18.37	\$19.40	\$40,360	.3%
53-7062	Laborers and material movers	2,143,940	\$11.49	\$12.70	\$26,410	.3%
53-7051	Industrial truck and tractor operators	496,570	\$14.53	\$15.43	\$32,090	.5%
53-3033	Truck drivers, light	769,010	\$14.13	\$16.32	\$33,940	.3%
53-7064	Packers & packagers, hand	660,670	\$9.57	\$10.80	\$22,470	.3%

Source: Bureau of Labor Statistics, *May 2012 National Occupational Employment and Wage Estimates*

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage.

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## **Outlook**

### National

Employment in the transportation and warehousing sector is projected to grow by 20% from 2010 to 2020. However, since growth prospects for the industry are closely tied to the broader national economy, consumer demand is linked to demand for product shipping.

The U.S. Census data shows an employment increase in the transportation and warehousing industry sector from 3.6 million in 2002 to 4.4 million in 2007, an increase of 22%. Additionally, the number of establishments has increased by 10.1% in the same time frame.

Other occupations in the transportation and warehousing sector that are projected to have a growth of 20% or more by 2020 include, but are not limited to: Training and Development Specialists, Market Research and Analysts, Aerospace Engineers, Computer Occupations, Industrial Engineers, Chemists, Life Scientists, and Water Transportation Workers.

Occupations projected to have a decline of 20% or more include, but are not limited to: Petroleum Engineers, Electrical Drafters, Switchboard Operators, Meter Readers, Utilities, and miscellaneous Plant and System Operators.

### Pennsylvania

According to the PA Department of Labor and Industry, Pennsylvania is a key transportation corridor of the Northeast. Ports, rail systems and highways make PA highly competitive in the warehousing and shipment of goods. As these services become increasingly mechanized, a qualified workforce is vital to development efforts.

General warehousing and storage dominate all other industries in this cluster. Not only is general warehousing and storage the largest industry in Logistics and Transportation, job volumes increased more than 15%, while the next largest industry, couriers, declined. More than one (1) out of every three (3) occupations in the cluster is that of a truck driver, including both heavy- and light-truck drivers. As of 2008, this industry sector for Pennsylvania attributed 162,194 total jobs.

Large-scale logistics and transportation employers in Pennsylvania include United Parcel Service Incorporated, Federal Express Corporation, Wal-Mart Associates Incorporated, YRC Incorporated, FedEx Ground, and NBC Philadelphia Merchants.

### York County

In 2009, York County's Logistics and Transportation cluster made up 5% of the labor force, employing 5,661 people. Logistics and transportation has been a natural strength for York County due to its proximity to major markets and a strong transportation network. In 2011, York

County saw growth in this industry sector with an increase in employment to 7,962 people, a 29% increase.

FedEx Ground and ES3 LLC are among the 50 largest York County employers and leaders in the industry. ES3 specializes in distribution activities (e.g. storage, shipping, and selection) for multiple manufacturers in a single location, and boasts the ability to ship products to customers in a 24 hour turnaround time.

### **York County's Competitive Position: Key Strengths**

1. York County offers a strategic location, with interstate and rail access to the mega-region that spans Philadelphia, Baltimore, and Washington, DC.
2. York County offers an existing base of logistics and transportation firms and workers from which to build expansion and recruitment efforts.
3. York County is relatively lower-cost and less built-out than other areas in the broader mega-region, offering an advantage for logistics and transportation firms sensitive to land and transportation costs.
4. The logistics/transportation sector is a supportive industry to the growth of other industries. As York County diversifies and expands its manufacturing sectors, the logistics/transportation sector also should have opportunities to expand.
5. The Port of Baltimore recently underwent an expansion with approximately \$250 million invested into the project in anticipation of the widening of the Panama Canal. This gives Baltimore and Norfolk an edge over similar west coast ports, such as Port of Los Angeles and Port of Long Beach.

### **4.7 Agriculture and Food Production**

#### *High Priority Retention Target*

#### **Industry Overview**

The agriculture and food production industries include establishments involved in food systems. This includes all activities from the growing of crops and raising of animals to the processing of agricultural products by food manufacturers. These manufacturers then distribute products to consumers through support industries (e.g. warehousing, storage, and retail).

According to the Bureau of Labor Statistics, the United States key agriculture and food production industries (e.g. the agriculture, forestry, and fishing, and food manufacturing sectors) employ an estimated 1.5 million workers in 2012 (Exhibit 4-8). In Pennsylvania, industries that support these key production sectors include, but are not limited to: retail, storage and warehousing. They provide the bulk of employment for cashiers, stock clerks and order fillers,

packers and packagers, food preparation workers, and laborers and material movers. Exhibit 4-9 details the wage and employment information in the agriculture and food production top occupations.

<b>Exhibit 4-8: National Overview Food &amp; Agriculture Production</b>		
NAICS Code	311	311
Employment	1.5 Million – Food Manufacturing U.S. November 2006	1.5 Million – Food Manufacturing U.S. November 2012
Wage Rate	\$15.53/hr – Food Manufacturing U.S. November 2006	\$17.97/hr – Food Manufacturing U.S. November 2012

Source: Bureau of Labor Statistics

<b>Exhibit 4-9: Top Occupations – May 2012 Agriculture and Food Production</b>						
SOC	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
41-2011	Cashiers	3,314,010	\$9.12	\$9.79	\$20,370	.3%
43-5081	Stock clerks & order fillers	1,806,310	\$10.60	\$11.75	\$24,440	.2%
53-7064	Packers & packagers, hand	660,670	\$9.57	\$10.80	\$22,470	.3%
35-2021	Food preparation workers	785,370	\$9.28	\$10.05	\$20,910	.4%
53-7062	Laborers & material movers	2,143,940	\$11.49	\$12.70	\$26,410	.3%

Source: Bureau of Labor Statistics, May 2012 National Occupational Employment and Wage Estimates

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage.

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## **Outlook**

### National

Total occupation in the Food Manufacturing industry sector is expected to increase by only 1.6% between 2010 and 2020, while employment of food preparation workers is projected to grow 10% during this period. Job opportunities are expected to increase because of the need to replace the large number of workers who leave the occupation each year. Technology advances, which have allowed for the automation of farming and food production practices, are the main reason behind these employment trends. In the agricultural sector, increasingly productive machinery and greater use of science, including biotechnology, have allowed for enhanced crop and animal yields with fewer workers. Also, prices for agricultural goods have not generally kept pace with increases in the cost of farming, which has not allowed farmers to hire as much farm labor as in the past. In order to reduce costs, many farms have consolidated into large-scale farms to achieve greater economies of scale (and reduced cost per unit of production).

In the food production sector, intense competition among firms has led manufacturers to increasingly invest in new technologies and machinery to enhance production. As a result, fewer production workers will be needed, but workers with technical skills will instead be in demand. Demand for food processing is expected to increase as the population increases, and as time-pressed consumers have increasingly opted for convenient, processed foods. The food production industry is less susceptible to recessions than other industries, since demand for food generally remains constant.

### Pennsylvania

According to the U.S. Department of Agriculture Statistics Service, the market value of agriculture products sold in Pennsylvania is more than \$5.8 billion annually. The growth of food processing firms creates an important supply chain with significant potential for growth. It is important for the Commonwealth to explore the workforce needs of this critical industry cluster and training programs.

Agriculture and Food Production has historically been an integral part of Pennsylvania's economy. An abundance of job opportunities exist in this cluster, with many requiring on-the-job training and minimal experience. Two (2) industries in this cluster, confectionary manufacturing from cacao beans and mushroom production, have concentrations that are greater than ten (10) times the national average and were among the highest location quotients of any industries that comprise the State's 11 clusters. Industries in this cluster tend to be concentrated near the food production centers and major highways in the central and southern portions of the State.

Although, the U.S. Census Economic Snapshot showed an employment decrease from 71,069 in 2002 to 67,966 in 2007, the data also shows a 26.1% increase in value of shipments.

Large-scale employers in the Commonwealth include Hershey Foods Corporation; Cargill Meat Solutions; Hatfield Quality Meats, Incorporated; Kraft Foods, Incorporated; Knouse Foods Cooperative, Incorporated; and Moyer Packing Company. Many of these large employers are located in the southeastern part of the Commonwealth, which offers access to transportation networks and customers in the northeast and mid-Atlantic regions.

### York County

York County offers many large food manufacturers and contains a strong farming heritage, with active farms in operation throughout the County (particularly in the southeastern region). Compared to the rest of Pennsylvania, the agriculture and food production industry has fared better in York County over the past several years, though employment has declined. At the end of 2009, this cluster's location quotient was 1.6 and made up 7% of the labor force, employing 7,344 people. Between 2006 and 2009, the Agriculture and Food Production cluster experienced an increase in workforce by 408. York County continued to be a net exporter in this cluster.

Major agriculture and food production employers in the County include Giant Foods, Utz Quality Foods, Weis Markets, United Natural Foods, Snyder's–Lance, CHR Corporation, Hanover Foods Corporation, Starbucks Roasting Plant, and D.F. Stauffer Biscuit Company. York County is also situated next to Lancaster County, which is among the Commonwealth's top three (3) counties in terms of agriculture and food production employment.

### **York County's Competitive Position: Key Strengths**

1. York County is a leader in the food production and agriculture industry, and existing major employers, such as Utz Quality Foods, Starbucks, Snyder's of Hanover, and others, offer a strong foundation for the industry.
2. The emergence of the renewable energy sector, with its emphasis on biofuels in York County, offers a potential opportunity for existing farmers to transition into renewable-energy related activities.
3. York County offers fertile land and cohesive agricultural areas, particularly in the southeastern part of the County, which can be strengthened.
4. The County's location in the relatively affluent and educated mega-region that encompasses Philadelphia, Baltimore, and Washington, DC offers opportunities to attract day-trippers with agritourism (e.g. bed and breakfasts, corn mazes, farmers markets).

### *4.8 Advanced Materials and Diversified Manufacturing: Metals and Metal Fabrication*

#### *High Priority Retention Target*

#### **Industry Overview**

Three (3) broad industry categories comprise the metals/metal fabrication sub-cluster: primary metal manufacturing, fabricated metal product manufacturing, and machinery manufacturing.

Firms in the primary metal manufacturing industry transform raw metals to basic metal products and wire, rod, sheet, strip or bar metal. Firms engaged in fabricated metal product manufacturing create intermediate or end products from metal, such as architectural elements and hand tools. Firms involved in machinery manufacturing use multiple metal forming processes to produce machinery. Processes involved in metal fabrication and manufacturing include smelting, refining, forging, bending, forming, stamping, machining, welding and assembling. Metals manufacturing is linked to many other manufacturing industries, as metal is a main intermediate good used in everything from vehicle and vehicle equipment manufacturing to medical devices and the energy industry.

Primary metal, fabricated metal product, and machinery manufacturers employ an estimated 3.9 million workers in the United States, according to the Bureau of Labor Statistics. In August of 2013, the machinery manufacturing subsector (NAICS code 333) employed 1.1 million people (Exhibit 4-10). Occupations in these industries include both professional and production positions including engineers, technicians, managers, and production and assembly workers. Exhibit 4-11 details the wage and employment information for August 2013 in the metals and metal fabrication top occupations.

<b>Exhibit 4-10: National Overview Metals/Metal Fabrication</b>		
NAICS Code	331, 332, 333	331,332,333
Employment	1.2 Million – NAICS 333 U.S. November 2008	1.1 Million – NAICS 333 U.S. August 2013
Wage Rate	\$17.97/hr U.S. November 2008	Varies by Industry – U.S. August 2013 \$25.24/hr for Primary Metal Manufacturing \$21.75/hr for Fabricated Metal Products \$26.26/hr for Machinery Manufacturing

*Source: Bureau of Labor Statistics, Industries at a Glance, Primary Metal Manufacturing: NAICS 331; Fabricated Metal Product Manufacturing: NAICS 332; and Machinery Manufacturing: NAICS 333*

**Exhibit 4-11: Top Occupations – May 2007  
Metals/Metal Fabrication**

SOC	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
51-4041	Machinists	388,370	\$18.99	\$19.65	\$40,860	.4%
51-1011	First-Line Supervisors/Managers of Production & Operating Workers	568,820	\$25.98	\$27.61	\$57,420	.2%
51-4031	Cutting, Punching & Press Machine Operators	182,570	\$14.27	\$14.95	\$31,090	.5%
51-2092	Team Assemblers	1,006,980	\$13.29	\$14.38	\$29,910	.6%
51-4011	Computer-Controlled Machine Tool Operators	138,870	\$17.10	\$17.70	\$36,810	.5%

*Source: Bureau of Labor Statistics, May 2012 National Occupational Employment and Wage Estimates*

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage.

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## Outlook

### National

According to the Bureau of Labor and Statistics, *Industries at a Glance*, employment in the primary metal industry sector is expected to increase slightly between 2010 and 2020 by 1.6%. Metal fabrication is expected to increase significantly more by 11.8% between 2010 and 2020. However, the machinery manufacturing industry sector is expected to decline by 1.5% during this time period.

In the U.S. Census Industry Snapshot, the fabricated metal manufacturing subsector showed an increase in employment nationally from approximately 1.5 million in 2002 to 1.6 million in 2007; a 2.4% increase. Additionally, data shows an increase of 39.7% in the value of shipments.

The recent nationwide economic recession could also contribute to reduced employment. The metal industry and, in particular, the steel industry component are linked to the production of materials used in construction, vehicle and vehicle equipment manufacturing, and household appliances. Since consumer spending drives activity in these industries, they, and the metal industry, are more susceptible to economic downturns. Machinery manufacturing is also susceptible in that firms tend to delay purchases of new machinery during times of economic uncertainty.

However, an increased interest in energy production, from both the non-renewable and renewable standpoints, offers a bright spot for the metals manufacturing sector despite the national recession. On the non-renewable side, as refinery, power plant, and pipeline projects increase to accommodate the expanding nuclear, natural gas, and shale oil industries, each will require steel for production. The expanding solar and wind industries also will make use of metals industry suppliers. Makers of solar panels require metal frames for the panels and metal tubes for solar receiver products, thus solar panel manufacturers should provide demand for metals manufacturers. The wind industry, which also requires metals, offers strong potential for expansion, particularly in the southwestern states of New Mexico and Texas. Finally, as interest in the fuel savings associated with rail increase, rail companies are investing in expanded infrastructure that will require metals.

### Pennsylvania

According to the Pennsylvania Department of Labor & Industry's Center for Workforce Information & Analysis, major technological advances have changed the nature of manufacturing nationwide. Metal and plastics production are increasingly automated, while technological breakthroughs have created increased demand in the areas of powdered metals and chemicals. Although many of these advances have resulted in job losses in the more manual occupations, the demand for highly skilled workers has increased. For Pennsylvania to maintain its manufacturing advantage, its workforce development system must provide programs that enable workers to shift into technology-driven manufacturing jobs and enable employers to increase productivity.

Despite a steady decline in manufacturing employment, Advanced Materials and Diversified Manufacturing still provides more than 315,000 jobs, with average annual wages 20% above the Statewide average. The 2006 to 2008 period was particularly tough on manufacturing jobs, with increased competition stemming from reduced overseas production costs. Although jobs in Advanced Materials and Diversified Manufacturing have decreased overall, notable growth has occurred in certain industries, such as specific types of plastics manufacturing. Jobs in various aspects of the steel industry have also increased following decades of decline.

According to the U.S. Census Industry Snapshot, fabricated metal manufacturing showed a .1% increase in employment from 92,024 in 2002 to 92,144 in 2007, while machinery manufacturing showed a 3.7% increase in employment from 54,855 in 2002 to 56,867 in 2007.

This industry's largest employers in Pennsylvania include: General Electric Company, The Boeing Company, R. R. Donnelley & Sons Company, Harley Davidson Motor Company, Cardone Industries Incorporated, and BAE Systems Land & Armaments L.P.

## York County

The Advanced Materials and Diversified Manufacturing cluster was York County's second largest cluster in the 2009 Industry Cluster Analysis, involving 484 firms and over 16,039 workers, representing 16% of the labor force with a location quotient of 1.87. By 2012, employment in the 31-33 industry sectors in York County totaled 31,791 with a total of 599 manufacturing establishments.

York County is among the top several counties in Pennsylvania in terms of employment in metals and metal fabrication. Top employers in the County include, but are not limited to: R.H. Sheppard, Inc., New York Wire, Harley Davidson Motor Company, and BAE Systems Land & Armaments L.P.

### **York County's Competitive Position: Key Strengths**

1. York County offers a workforce skilled in manufacturing, and an extensive concentration of metals and metal fabrication manufacturing that is important to retain.
2. Though the industry is contracting in terms of employment nationally and locally, the need for new technologies to streamline production provides a need for engineers and educated workers. York is competitively situated within the broader mega-region of Philadelphia, Baltimore, and Washington, DC with its access to such educated workers.
3. York County offers opportunities for expansion of the renewable energy industry, which will require the services of metals and metal fabrication manufacturers. Such potential expansion of the energy sector offers an opportunity for metals and metal fabrication manufacturers to transition into producing new goods and using new technologies to support renewable energy development.
4. The County's strong inventory of existing industrial parks is an important selling point for firms that desire locations in industrial areas.

### **4.9 Advanced Materials and Diversified Manufacturing: Printing**

#### *High Priority Retention Target*

#### **Industry Overview**

The printing industry includes firms engaged in printing text and images on to paper, metal, glass, apparel, and other materials. There are three (3) distinct phases to printing: prepress, press (or output), and post-press (or finishing), which are often performed by the same company. The printing activities of newspapers are not included, but instead are included as part of the publishing industry.

According to the Bureau of Labor Statistics, the United States printing industry represented approximately 445,000 jobs in 2013, most of which are in the following occupations: printing machine operators, bindery workers, prepress technicians and workers, and job printers, as well as first-line supervisors and managers of production and operating workers (Exhibit 4-12). Exhibit 4-13 details the wage and employment information in the printing industry top occupations.

<b>Exhibit 4-12: National Overview Printing</b>		
NAICS Code	323	323
Employment	584,900 – U.S. November 2008	445,000 – U.S. August 2013
Wage Rate	\$16.98/hr – U.S. November 2008	\$22.31/hr – U.S. August 2013

Source: Bureau of Labor Statistics, *Industries at a Glance, Printing and Related Support Activities: NAICS 323*

<b>Exhibit 4-13: Top Occupations – May 2012 Printing</b>						
SOC	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
51-5112	Printing Press Operators	173,010	\$16.68	\$17.35	\$36,090	.5%
51-5113	Print Binding & Finishing	52,960	\$14.30	\$15.17	\$31,560	.8%
51-5111	Prepress Technicians & Workers	41,420	\$17.91	\$18.76	\$39,020	.9%
53-7063	Machine Feeders & Offbearers	105,790	\$13.04	\$13.79	\$28,680	.7%
51-9198	Helpers – Production Workers	419,840	\$10.96	\$11.84	\$24,620	.4%

Source: Bureau of Labor Statistics May 2012 National Occupational Employment and Wage Estimates

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage.

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## Outlook

### National

Between 2010 and 2020, printing employment is estimated to fall by 4.8% nationally. Key trends behind declining employment are an increased use of technology that has reduced need for printing. More companies are performing printing activities in-house, and more printing products are being imported today than in the past.

Comparison of the most recent U.S. economic census data illustrates the industries past declines. In 1997, there were 5,000 more printing and related support activities establishments than in

2002 and a further decline to the most recent data in 2007 with additional loss of almost 4,000 establishments. In 2007, the U.S. Census Industry Snapshot listed the total number of related establishments at 33,817, a decrease of 9.9% from 2002. Employment declined at a similar pace as the average firm size decreased by 9.7%. Between 2002 and 2007, actual employment decreased from 834,404 in 1997 to 715,777 in 2002 and down to 646,183 in 2007. But, in comparison, the value of shipments showed an increase of 7.6% from 2002 to 2007.

### Pennsylvania

Pennsylvania benefits from both strong transportation and distribution networks and abundant natural wood resources that give printing and related support activities a competitive advantage. Pennsylvania is home to a number of global firms, many of which are concentrated in the south central and southeastern regions.

However, in terms of employment change, Pennsylvania, like the nation as a whole, has been losing jobs in printing and related support activities over the past few years. The U.S. Census shows that NAICS code 323 had an employment loss of 11.4% from 2002 to 2007 in Pennsylvania, from 45,391 to 40,210 jobs, a loss of 5,181 jobs. This signals a mature industry that is losing some ground relative to other states, though still surviving.

### York County

In 2011, the U.S. Census data showed that 2,159 persons were employed in printing and related support activities in 44 total printing and related support activities establishments in York County. However, the data also shows a loss of 979 employees since 2007, as well as a loss of five (5) establishments. The County's largest printing and related support activities employer is the P.H. Glatfelter Company, ranked 15<sup>th</sup> among all County employers in terms of employment.

### **York County's Competitive Position: Key Strengths**

1. York County has a strong existing base of printing firms and workers to retain.
2. The County's transportation network, with interstate and rail connections, offers access to the broader mega-region (e.g. Philadelphia, Baltimore, and Washington, DC).
3. York County is cost-advantaged, with relatively lower land cost than other areas in the broader mega-region, which is appealing to larger-scale, industrial-type printing operations.

## 4.10 Building and Construction

### High Priority Retention Target

#### Industry Overview

Building and construction firms construct and engineer the infrastructure and real estate that services other industries and residents. Homes, offices, factories, institutions, transportation systems and utility systems are created, expanded, altered, repaired and maintained by building and construction firms. There are three (3) broad categories of firms in the industry: 1) general contractors, who construct buildings (NAICS code 236); 2) heavy and civil engineering construction contractors, who build major infrastructure projects such as sewers, roads, highways, bridges and tunnels (NAICS code 237); and 3) specialty trade contractors, who offer specialized construction services (e.g. plumbing, heating and air conditions, electrical, painting, carpentry, etc. (NAICS code 238). In 2013, the nation's building and construction firms employed an estimated 5.8 million workers in a variety of occupations, from construction managers to carpenters, electricians and laborers (Exhibit 4-14). Exhibit 4-15 details the wage rate and employment information for May 2012 in the buildings and construction top occupations.

<b>Exhibit 4-14: National Overview Building &amp; Construction</b>		
NAICS Code	23	23
Employment	7 Million – U.S. November 2008	5.8 Million – U.S. August 2013
Wage Rate	\$22.21/hr – U.S. November 2008	\$26.27/hr – U.S. August 2013

Source: Bureau of Labor Statistics, *Industries at a Glance*

<b>Exhibit 4-15: Top Occupations – May 2012 Buildings and Construction</b>						
SOC	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
47-2031	Carpenters	567,820	\$19.20	\$21.41	\$44,520	.4%
47-2061	Construction Laborers	814,470	\$14.42	\$16.58	\$34,490	.4%
47-2111	Electricians	519,850	\$23.96	\$25.50	\$53,030	.5%
47-2152	Plumbers, Pipefitters, & Steamfitters	340,370	\$23.62	\$25.46	\$52,950	.5%
47-1011	Supervisors – Construction & Extraction	456,640	\$28.70	\$30.40	\$63,230	.2%

Source: Bureau of Labor Statistics, *May 2012 National Occupational Employment and Wage Estimates*

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage.

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## **Outlook**

### National

The building and construction industry is strongly linked to the business cycle, and when economic downturns occur, this industry is among the first affected when developers and firms cancel or put a hold on construction projects. State and local governments can also impact building and construction firms when they cancel infrastructure construction and maintenance projects in the face of budgetary constraints.

In the economic depression since 2007, the construction of new housing nationwide had fallen to its lowest level. Over a ten (10) year period, from 2003 to 2013, the Department of Labor & Industries data shows 7.7 million persons employed as its highest in the construction sector in April 2006 and a low of 5.4 million persons employed in January 2011. As of September 2013, there were a total of 5.8 million persons employed in the construction industry in the nation.

However, nationwide population growth is expected to continue, and demand for new housing, retail, and office development will inevitably return once supply and demand reach equilibrium. The children of baby boomers, the echo boom, are reaching the age when many households buy their first home, which could create demand for new housing. Remodeling of existing homes could also increase in the near-term as demand for new homes slows, creating opportunities for specialty construction firms. Employment of construction laborers and helpers is expected to grow 25% from 2010 to 2020, faster than the average for other occupations in this sector, according to the Bureau of Labor & Statistics. Those with the most skills should have the best job opportunities.

Demand for nonresidential construction, including schools and nursing homes, will likely result from aging baby boomers, and industrial infrastructure will need to be built or replaced (many industrial plants are in need of replacement or remodeling, which has been delayed in the past). Renewable energy projects also will provide need for building and construction services, and governmental policies to invest in infrastructure projects could help the industry succeed through the downturn.

### Pennsylvania

Pennsylvania's building and construction firms employ nearly 350,000 workers, according to Commonwealth estimates, which include the manufacturing of equipment for construction, such as heating and air conditioning machinery. As the housing market saw tremendous declines, Building and Construction was one of the clusters most impacted by the recession, with more than 10,000 jobs lost between 2006 and 2008. While the downward trend has showed signs of slowing, there are increased skill needs for Building and Construction workers now and in the future. As Pennsylvania, along with the rest of the country, continues to move toward an overall

greener economy, new opportunities (weatherizing homes, installing energy efficient heating and cooling systems, or using greener building materials) are apparent in this cluster.

Additionally, a large portion of the jobs in this cluster require only short to long-term on-the-job training, as opposed to a time consuming and costly four (4) year degree. Despite the short educational commitment for obtaining these jobs, a large portion of them still pay a family-sustaining wage, making careers in this cluster appealing to many individuals who either cannot afford, or otherwise do not find themselves attracted to, a college education.

According to the Pennsylvania Department of Labor & Industry, major employers in Pennsylvania in this sector include Grove US LLC, Kinsley Construction, JLG Industries LLC, Johnson Controls International, and Pennsy Supply Incorporated. Most of the Commonwealth's building and construction jobs are located in the Philadelphia and Pittsburgh regions, near major population centers.

### York County

York County's Building and Construction cluster comprised 14% of the labor force, employing 14,231 people according to the 2009 Industry Cluster Analysis, the most recent data available. The cluster's location quotient increased from 1.31 in 2006 to 1.59 in 2009. However, the industry lost 1,707 jobs during that time. According to the shift share analysis, the Building and Construction cluster was a poor performer in 2009. Though the industry had a strong location quotient, growth potential was limited due to external trends compared to the State and nation.

Major employers in this sector in the County include Kinsley Construction, a major full-service general contracting firm serving the Mid-Atlantic region, and Johnson Controls, a manufacturer of heating, ventilation and air conditioning equipment.

### **York County's Competitive Position: Key Strengths**

1. York County offers a strong base of building and construction firms and workers, with large employers, such as Kinsley Construction, calling York County home.
2. The emergence of the renewable energy sector in York County and Pennsylvania could offer opportunities for the transitioning of workers into new, renewable-energy related specialties. Construction firms also will be needed to support the construction of renewable energy facilities, such as ethanol and biodiesel plants.
3. The building/construction sector is tied to the prosperity and growth of other industries in the surrounding region, and to population growth. With York County offering opportunities for growth of pharmaceutical manufacturing and renewable energy component manufacturing, there should be opportunities for firms to specialize in such construction.

## 4.11 Health Care

### *Emerging Strength*

### **Industry Overview**

The health care industry includes establishments and organizations that provide ambulatory health care, hospitals, and nursing and residential care facilities. Included in the industry are organizations that provide social assistance, as well as health care services. This sector includes both health care and social assistance because it is difficult to distinguish between the boundaries of these two (2) activities. Many of the industries in this sector are defined based on the educational degree held by the practitioners included in the industry.

As of August 2013, the United States health care industry employed an estimated 17.4 million workers (Exhibit 4-16) in an estimated 850,000 establishments, making it one of the nation's largest industries. The vast majority of establishments are the offices in the private industry sector. Exhibit 4-17 details the wage rate and employment information in the health care industry top occupations.

<b>Exhibit 4-16: National Overview Health Care</b>		
NAICS Code	62	62
Employment	16 Million – U.S. November 2008	17.4 Million – U.S. August 2013
Wage Rate	\$19.46/hr – U.S. November 2008	\$24.97/hr – U.S. August 2013

*Source: Bureau of Labor Statistics, Industries at a Glance*

<b>Exhibit 4-17: Top Occupations – May 2012 Health Care</b>						
SOC	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
29-1141	Registered Nurses	2,633,980	\$31.48	\$32.66	\$67,930	.3%
29-1069	Physicians & Surgeons	308,410	N/A	\$88.86	\$184,820	1.0%
31-1015	Orderlies,	53,920	\$11.53	\$12.35	\$25,700	.6%
29-2061	Licensed Practical & Vocational Nurses	718,800	\$19.97	\$20.39	\$42,400	.2%
43-4171	Receptionists & Information Clerks	966,150	\$12.49	\$13.00	\$27,050	.2%
29-1051	Pharmacists	281,560	\$56.09	\$55.27	\$114,950	.7%

*Source: Bureau of Labor Statistics, May 2012 National Occupational Employment and Wage Estimates*

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage.

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## **Outlook**

### National

The Bureau of Labor & Industries data states that the health care industry is projected to grow faster than all other industries over the next decade, approximately 5.7 million new jobs, a 32.7% increase, are projected for 2020.

Employment of medical records and health information technicians is expected to increase by 21% from 2010 to 2020, faster than the average for all occupations in this sector according to the Bureau of Labor & Statistics Occupational Outlook Handbook. The demand for health services is expected to increase as the population ages. An aging population will need more medical tests, treatments, and procedures. This will also mean more claims for reimbursement from private and public insurance. Additional records, coupled with widespread use of electronic health records by all types of healthcare providers, could possibly lead to an increased need for technicians to organize and manage the associated information in all areas of the healthcare industry.

Technology improvements in diagnostic testing and surgical procedures, many resulting from bio-medical research and manufacturing, will also allow more services to occur in less expensive outpatient and home settings than in inpatient facilities. New technologies also will allow for the treatment of previously untreatable illnesses, resulting in a need for more workers to administer treatment.

### Pennsylvania

Like other parts of the nation, health care in Pennsylvania is a rapid growth industry, and projected to continue to grow as the Commonwealth's population ages. Health care is also the Commonwealth's largest industry, with approximately 28,000 establishments and nearly 815,000 workers, according to Pennsylvania's Center for Workforce Analysis in 2008. A workforce shortage of health care workers, in particular, certified nursing assistants, licensed practical nurses, nursing home and home care workers, has presented a major need for recruitment and retention of these workers.

Health Care is exploding throughout Pennsylvania. The top three (3) industries in this cluster represent nearly 54% of all health care jobs, with general medical and surgical hospitals providing nearly one (1) in three (3) jobs. Although the cluster's average wage is just slightly higher than Pennsylvania's statewide average, certain occupations, such as registered nurses and pharmacists, earn significantly more than the average.

The Commonwealth's large-scale employers in the health care industry include UPMC Presbyterian, Heartland Employment, The Children's Hospital of Philadelphia, Western Pennsylvania Hospital, University of Pennsylvania, and Pennsylvania Blue Shield. However, the vast majority of health care jobs are located in small establishments that employ less than 50

workers. Health care employment in the Commonwealth is distributed similarly to population, with many health care jobs located in populated centers, such as Philadelphia and Pittsburgh.

### York County

York County's Healthcare cluster was the largest sector comprising 18% of the labor force, employing 18,869 people in 2009. A location quotient of 0.74 indicated that the healthcare needs of the local population could not be met by the existing network of providers within the County. From 2006 to 2009, 4,203 jobs were created in the Healthcare cluster. Despite those positive gains, the nation outpaced local growth. When compared to the State, the Healthcare cluster was an emerging strength for York County with potential for future growth, according to the shift-share analysis.

Large health care employers in York County include York Hospital, Hanover General Hospital, Memorial Hospital, Wellspan Medical Group, and Wellspan Health.

### **York County's Competitive Position: Key Strengths**

1. The aging and growth of the population in York County, including in-migration of retirees, will generate additional demand for health care.
2. York County's health care sector employment grew more rapidly than that of the Commonwealth and nation, testament to the emergence of this industry in the County.
3. Demand for retirement communities in York County offers an opportunity for health care facilities integrated with housing.

## **4.12 Business and Financial Services**

### *Emerging Strength*

#### **Industry Overview**

Financial and insurance firms provide a wide range of services to facilitate financial transactions. The industry can be broadly divided into three (3) sectors: 1) banking; 2) insurance; and 3) securities, commodities and other investments. According to the Bureau of Labor Statistics, the United States finance and insurance industries (Exhibit 4-18) represent approximately 6 million jobs in a variety of occupations, from tellers and loan officers to accountants, auditors, and insurance sales agents. In addition, monetary authorities charged with monetary control are included in this sector. Exhibit 4-19 details the wage and employment information, for August 2013, in the business and financial services industry top occupations.

<b>Exhibit 4-18: National Overview Business and Financial Services</b>		
NAICS Code	52	52
Employment	6 Million – U.S. November 2008	6 Million – U.S. August 2013
Wage Rate	\$21.69/hr – U.S. November 2008	\$29.55/hr – U.S. Second Quarter 2013

Source: Bureau of Labor Statistics, *Industries at a Glance*

<b>Exhibit 4-19: Top Occupations – May 2012 Business &amp; Financial Services</b>						
SOC	Title	Wage Estimates				
		National Employment	Median Hourly Wage	Mean Hourly Wage	Mean Annual <sup>1</sup>	Mean RSE <sup>2</sup>
43-9061	General Office Clerks	2,808,100	\$13.21	\$14.07	\$29,270	.2%
43-3071	Tellers	541,770	\$11.99	\$12.40	\$25,790	.2%
43-4051	Customer Service Representatives	2,299,750	\$14.70	\$15.92	\$33,110	.2%
37-2011	Janitors & Cleaners	2,097,380	\$10.73	\$11.95	\$24,850	.3%
33-9032	Security Guards	1,046,420	\$11.52	\$13.10	\$27,240	.4%

Source: Bureau of Labor Statistics, *May 2012 National Occupational Employment and Wage Estimates*

<sup>1</sup>Assumes year-round, full-time equivalent of 2,080 hours and hourly mean wage.

<sup>2</sup>Relative standard error (measure of reliability of survey statistic)

## Outlook

### National

Within the financial and business services sector, securities, commodities, and investments have been projected to grow 14.2% by 2020, compared to the insurance claims industry at 7.8%. From 2002 to 2007, the number of finance and insurance establishments in the nation rose by 14%.

The Bureau of Labor & Industries Occupational Outlook states that employment of insurance underwriters is expected to increase 6% from 2010 to 2020, slower than the average for this sector. New types of automated underwriting software allow workers to process applications quicker than before, reducing the need for underwriters. Employment of financial examiners is projected to grow 27% from 2010 to 2020, faster than the average for all occupations in this sector. New regulations will likely create a need for an increase in examiners. Additionally, employment of personal financial advisors is projected to grow 32% from 2010 to 2020, significantly faster than the average for occupations in general. As large numbers of baby

boomers approach retirement age, they will seek planning advice from personal financial advisors.

## Pennsylvania

The Business and Financial Services cluster is diverse and concentrated in the southwest and southeast area of the State. Many larger businesses could not exist without the support services offered by smaller companies.

This cluster continues to be a major employer in the Commonwealth. Nearly one (1) out of every eight (8) Pennsylvania jobs are business and financial services, for a total of 673,612 jobs. While many of the industries within this cluster, such as commercial banking and offices of real estate agents and brokers, have a presence in virtually every community in the State, other niche industries are concentrated near Pennsylvania's urban financial centers. One such industry is open-end investment funds, which has a Statewide concentration ten (10) times the national average.

Large-scale employers in this industry cluster include PNC Bank, WellsFargo, Vanguard Group, MBNA Institutional PA Services, Citizens Bank of Pennsylvania, and Allied Barton Security Services.

## York County

In the 2009 cluster analysis, York County's Business and Financial Services cluster totaled 13% of the labor force, employing 13,177 people. The location quotient was 0.65, indicating that York County was a net importer of the goods and services provided under this cluster. Despite adding 4,319 jobs between 2006 and 2009, the cluster was a lagging performer compared to the nation. The cluster was an emerging strength for York County when compared to the State, according to the shift-share analysis. Residential and employment growth in York County has contributed to the expansion of business and financial service sector positions.

### **York County's Competitive Position: Key Strengths**

1. York County's population is aging, and the area is a destination for retirees from Maryland because of Pennsylvania's favorable income tax laws for retirees and the County's strategic location at the Maryland-Pennsylvania border. The expansion of retirees in York County could create opportunities for local financial planning firms.
2. The business/financial services sector is largely a supportive industry. Therefore, the growth of other sectors, such as bio-medical, energy, health care, and defense contracting linked to this sector, will offer opportunities for spin-off business and financial services growth.

3. York County is strategically situated within driving distance of Philadelphia and Baltimore, both of which have financial services clustered in their central business districts. While near-term prospects for these large financial establishments to expand are poor, over the long-term, their potential resurgence could provide long-term opportunities for “back-office” administrative and support functions in York County.

4. York County offers a relatively lower cost of doing business than other areas in the broader mega-region, which enhances its desirability to “back-office” business and financial services support firms.

#### 4.13 Summary

York County’s business attraction, retention and expansion efforts should target the industries profiled in this chapter with 1) attraction efforts geared to both current strengths (e.g. those industries that are both current local specializations and growing at the national level, which include vehicle and vehicle equipment manufacturing, bio-medical, energy, and logistics/transportation) and emerging strengths (e.g. those industries not currently local specializations, but exhibiting growth at the national level, which include health care and business and financial services); 2) retention geared to both current strengths and high priority retention targets (e.g. those industries that are current local specializations, but not growing at the national level, which include agriculture and food production, metals and metal fabrication manufacturing, printing, and building and construction); and 3) expansion geared to current strengths.

While York County offers many strong selling points from which to attract the target industry clusters described in this chapter, there are three (3) industry clusters which bear special attention for economic development because of their resiliency to economic downturns. These industry clusters include:

- Renewable Energy (solar, wind, geothermal, hydroelectric, biomass and biofuels) – The outlook for this industry cluster is bright. Interest is strong and increasing as the United States transforms its energy infrastructure to become less reliant on non-renewable sources and foreign oil. Policy initiatives, including those that require utility companies to require a certain proportion of power from non-renewable sources, as well as incentives, offer strong promise for expansion of the industry.
- Bio-Medical – As the population ages and expands, leading to demand for new medicines, growth prospects are high for this sector. The growth of public and private health insurance programs also has increased demand for this industry’s products. Illustrative of this trend, pharmaceutical and medicinal manufacturers have added jobs, while other manufacturers have streamlined production and cut staff.
- Health Care – The aging and expansion of the population are main ingredients behind this industry’s growth. Outpatient and home care facilities are at the forefront of the

industry's growth opportunities as new technologies emerge from the bio-medical sector that allow for diagnostic testing and some surgical procedures to occur in less expensive outpatient and home settings.

Given the growth of these industries in York County and their resiliency in times of economic uncertainty, it is recommended that they are given priority as targets, even though a comprehensive and diversified business recruitment, retention, and expansion effort is needed to address all of the targeted industry clusters.

There are several key considerations to keep in mind when reflecting on these industries:

- First, there are **many interrelationships between the industry cluster targets**. For example, renewable energy is linked to metals and metal fabrication, since these firms manufacture solar panel and wind turbine components; building and construction, since these firms install solar panels and wind turbines and construct plants for biofuel production; agriculture and food production, since agricultural enterprises provide feedstock and waste for biofuels; and the logistics and transportation sector, since these firms distribute energy and components to major markets. For the metals and metal fabrication, building and construction, and agriculture and food production industries, renewable energy offers an opportunity for transitioning into new opportunities, thereby enhancing the odds for retention and expansion of these high priority retention targets.
- **An educated workforce is a critical input** to most of these industry clusters. A diverse and skilled workforce is needed to attract those industries that require skilled technicians and engineers (most manufacturing industries) to those requiring Ph.D.'s (bio-medical firms).
- Some industries **depend on growth of population and other industries** to thrive. For example, the health care, business and financial services, building and construction, and logistics and transportation industries each depend on growth of people and firms for expansion.

It is important to note, that although a focused target of the above clusters is considered a priority, the attraction, retention, and expansion efforts should not be short-sighted. Economic development professionals should be prepared to address all industry sectors for growth opportunities.