

Table of Contents

Executive Summary.....	1
Introduction and Methodology.....	3
Section 1: About the CONSTRUCTION Industry in Region 1.....	4
Section 2: Workforce Challenges and Opportunities	10
Conclusions and Recommended Actions.....	13

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West Virginia Region 1: Construction Industry

EXECUTIVE SUMMARY 2010

Using one-on-one interviews and surveys, focus group discussions, and construction industry data analysis, Corporation for a Skilled Workforce authored this report highlighting the main opportunities and challenges facing the construction industry in the Region 1 Workforce Development Area of West Virginia. This report first looks at the current conditions and economic climate within the region; then more narrowly analyzes the employer survey and interview responses, generating a detailed, first-hand description of southeastern West Virginia's construction industry. This report concludes with key recommendations for improving construction industry conditions within the region.

About the Construction Industry

The analyzed data suggests that the construction industry in the region has been hit particularly hard by the economic recession. The industry has seen substantial declines in employment since 2008, and employers face particularly tough challenges when attempting to fill key occupation roles within their companies. Occupations such as *Carpenters*, *Supervisors*, *Masons* and *Operating Engineers* may be difficult to fill due to limited training education programs within the region, forcing some employers to rely on less highly skilled workers. Although employment numbers are continuing to fall, turnover and retirement open up employment opportunities. Many potential employees lack job experience, education, or necessary training, so they tend to only qualify for entry level, low paying jobs. Companies then must rely on on-the-job training to teach employees necessary skills.

Workforce Challenges and Opportunities

Employers' interview and survey responses indicated that a lack of work opportunities for construction companies is by far the most widely felt challenge for the region's employers. This lack of work has forced many companies to find contracts outside of the region or to diversify their company operations to meet niche market demands. More specific concerns included banking regulations that limit funding, levels of unionization, worker's compensation laws, and resulting lawsuits. As a result of these challenges, employers reported low to moderate demand for new workers.

However, most were also optimistic for future growth and increased demand.

Employers' other major concern was over a lack of skilled workers in the region. Many are fearful that even when the economy does rebound, they will be unable to find and hire well-qualified employees. All employers interviewed reported a shortage of job applicants with necessary skill sets, and many believe most applicants lacked a strong work ethic. Employers suggest that these trends are due in part to the region's small population and the failure of educational and training institutions to meet market demands. There are few post-secondary institutions that even have construction-oriented training programs, and those that do, have relatively low program completion numbers. As a result, many employers are forced to hire applicants based upon work ethic rather than skill. The occupations employers find most important and hard-to-fill are skilled, and relatively well paying, positions such as carpenters, masons, equipment operators, and plumbers. Looking forward, many employers see technological advances and "green" construction as opportunities for growth within the construction industry. Additionally, the recently announced Boy Scouts of America facility will bring several thousand construction jobs to the region.



Recommended Actions

In response to the collected data and employer responses, Section 3 of this report contains several recommended actions for aiding construction industry growth and rebuilding within the region.

The main recommended actions include:

- Convening industry partnerships to learn more and collaboratively address workforce challenges facing the region's construction industry;
- Connecting with education and training programs to increase the number of skilled, career-ready workers;
- Working with the K-12, adult education, and postsecondary education systems to ensure they prepare students with strong foundational skills
- Identifying infrastructure funding improvements;
- Conducting a marketing campaign to raise awareness of high wage construction career paths; and
- Providing more support for green job developments.



Introduction & Methodology

In April of 2009, the Region 1 Workforce Investment Board launched a project to take an in depth look at the construction industry, considered one of the region's most critical industries along with protective services and manufacturing. The industry has been hard hit by the global economic recession, particularly the housing bust. Recognizing that the industry has historically suffered from an over abundance of workers in the midst of a recession followed by shortages of workers after the economy rebounds, Region 1 embarked on this project seeking to gain an understanding of the workforce challenges and opportunities faced by the region's employers today. Ultimately, the goal of this project and report is to help better broker training and other solutions, so the construction industry will be stable tomorrow. To help it meet these goals, Region 1 contracted with Corporation for a Skilled Workforce (CSW) to conduct an industry sector analysis.

The project began with an in-depth look at the industry, summarized in Section 1, which included reviewing employment trends, projected growth, location quotients, occupational characteristics, regional training programs, and area graduates. Analysis of the data revealed potential gaps between the occupational supply and demand. To further understand what is happening in this industry, CSW went directly to the region's employers. Through a combination of focus groups, one-on-one interviews, and surveys, the project connected with employers across the region. Section 2 describes the workforce challenges and opportunities facing construction employers within Region 1.

From this collected data, both primary and secondary, a set of recommendations for action has been created. These will provide a roadmap for moving forward in addressing the collective and individual challenges of these three industries. Section 3 contains the recommendations specific to the construction industry.

Acknowledgements

The Region 1 Workforce Investment Board thanks the following employers for their contributions to the research and the report:

Alliance Consulting
Compton Construction Company
Daniels Company
ESI
Ferguson Management, LLC
Fredeking/Stafford Construction Co
GC Perry Construction:
Leslie Equipment Co
M&W Contractors
Ryder Contracting, Inc.
(formerly Appalachian Contracting)
Swope Construction Co.
Turn Key Building Solutions



Section 1:

ABOUT THE CONSTRUCTION INDUSTRY IN REGION 1

In 2006, the construction industry in the region employed over 5,400 workers, an increase of 11% from 2003. However two years later, in 2008, employment had dropped back to the 2003 level of approximately 4,900 workers.

Although there were declines in employment across nearly all construction subsectors (see Figure 1), the overall drop was largely driven by a dramatic decrease in residential building employment. This in turn, was fueled by the global economic recession, specifically the housing bust.

How quickly the economy will rebound and if the residential building construction will ever return to its previous level remains to be seen. However, there are other opportunities for growth within the construction industry.

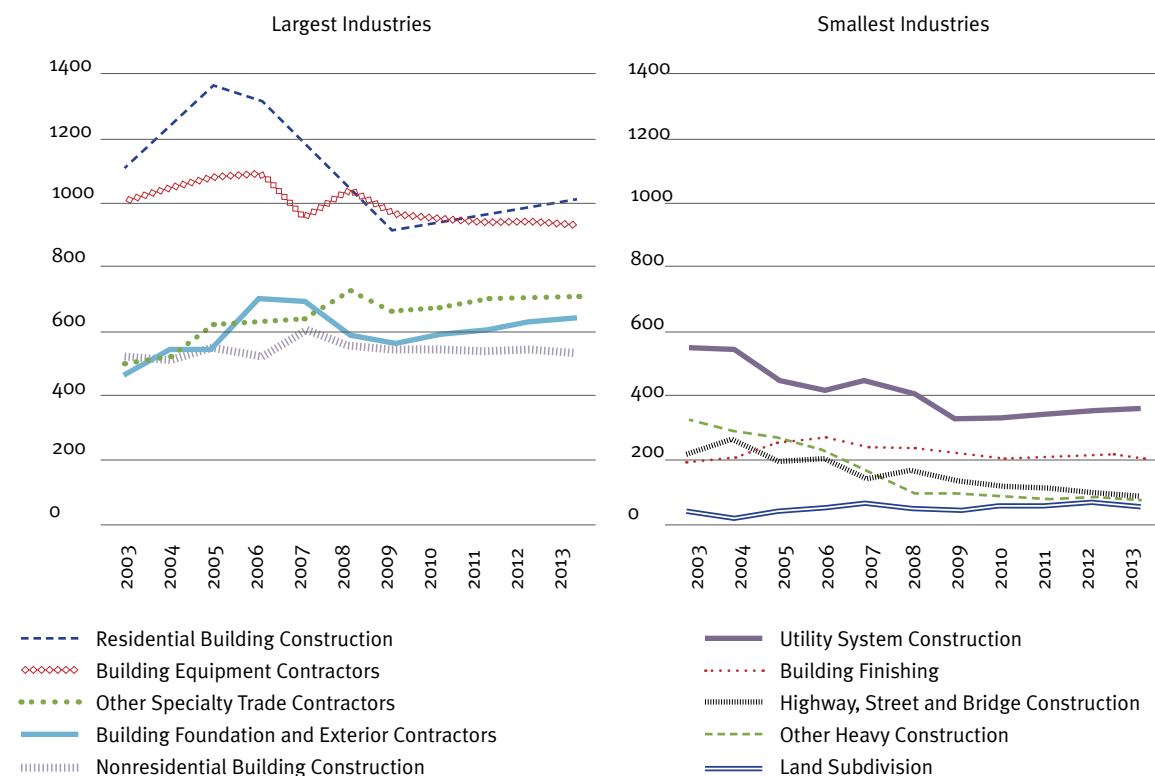
One bright spot on the horizon, which is not included in the employment projections in Figure 1, is the announcement from the *Boy Scouts of America* that Fayette County will be home to its National Scouting Center. Not only will

this facility host thousands of Boy Scouts each year, but once open, it will generate 80 full-time and 1,200 seasonal positions. Prior to that, and of great importance to the construction industry, the New River Gorge Economic Development Agency is forecasting that several thousand construction jobs will be needed during the building phase.

Key Occupations

Our analysis identified 23 key occupations (see Table 1) for the construction industry in West Virginia. It is important to note that while all of these occupations are likely to be important to the construction industry, the construction industry is not necessarily the dominant employer of those

Figure 1. Industry Subsector Employment Levels Source: Economic Modeling Specialists Inc. (EMSI)



workers. As Table 1 shows, it is not uncommon for a majority of workers in certain occupations to be employed in non-construction industries. This is important to consider when thinking about supply-demand gap analysis, as it means that not all training program graduates will be available to fill the demand within a single specific industry, even if that occupation is critically important within the industry. Occupations that are marked with a star in the table have at least 50% of occupation holders working within the construction industry.

Carpenters and *Construction Laborers* (see Table 1) are by far the most common job roles within the construction industry, comprising 27% of all employment (34% when *Carpenter Helpers* are included). This reflects employer input (see Section 2) that carpenters are both critical and hard-to-fill roles in the construction industry. Employers also frequently mentioned *Supervisors* and *Operating Engineers*. Interestingly, *Electricians* – though making up the same percentage of industry occupations as these two – were not mentioned at all by the interviewed employers. However, *Masons* were frequently mentioned as also being critical

Table 1. Cross-Industry Occupational Employment of Key Occupations

Source: Economic Modeling Specialists Inc. (EMSI)

Description	Jobs in Construction Industry only	Jobs as % of all Construction Jobs	Jobs in All Industries	Jobs within Construction Industry as % of Jobs in All Industries
★ Carpenters	714	15%	898	80%
★ Construction laborers	589	12%	766	77%
★ Helpers, carpenters	350	7%	385	91%
Electricians	313	6%	804	39%
Operating engineers and other construction equipment operators	295	6%	1334	22%
First-line supervisors/managers of construction trades and extraction workers	271	6%	688	39%
★ Plumbers, pipefitters, and steamfitters	204	4%	278	73%
★ Heating, air conditioning, and refrigeration mechanics and installers	98	2%	184	53%
★ Brickmasons and blockmasons	86	2%	99	87%
Telecommunications line installers and repairers	85	2%	263	32%
★ Cement masons and concrete finishers	82	2%	88	93%
★ Drywall and ceiling tile installers	80	2%	85	94%
★ Painters, construction and maintenance	63	1%	94	67%
Electrical power-line installers and repairers	49	1%	136	36%
★ Helpers, pipelayers, plumbers, pipefitters, and steamfitters	39	1%	41	95%
★ Structural iron and steel workers	37	1%	42	88%
Excavating and loading machine and dragline operators	34	1%	324	10%
★ Roofers	31	1%	32	97%
★ Sheet metal workers	30	1%	51	59%
First-line supervisors/managers of mechanics, installers, and repairers	26	1%	490	5%
Mobile heavy equipment mechanics, except engines	23	0%	382	6%
Crane and tower operators	21	0%	91	23%
★ Construction managers	13	0%	17	76%

and hard-to-fill roles, even though they make up only 2% of industry employment. These discrepancies may reflect limited training opportunities within the region, or worker interest in particular occupations.

Employment of *Carpenter Helpers* is nearly six times as concentrated in the region than in the nation as a whole and 2.6 times as concentrated as in the rest of West Virginia. However, employment of *Carpenters* is only 1.2 times more concentrated in Region 1 than in the nation. It is possible that a shortage of skilled and certified carpenters forces construction firms to rely on the lower skilled carpenter helper positions, accounting for the unusually high concentration of those workers.

Within the construction industry, employment in key occupations has followed the same growth pattern as the industry as a whole. Most occupations experienced significant increases in employment between 2006 and 2008, and then significant declines from 2006 to 2008. Continued, but more moderate, declines are anticipated in most occupations through 2013. *Roofers, Drywall and Ceiling Tile Installers, Brick Masons and Block Masons, Carpenter Helpers, Carpenters, and Sheet Metal Workers* experienced the steepest declines between 2006 and 2008 (see Table 2).

Table 2. Industry Specific Occupational Trends Source: Economic Modeling Specialists Inc. (EMSI)

Description	2003 Jobs	2006 Jobs	03-06 % Change	2008 Jobs	06-08 % Change	2013 Jobs	08-13 % Change
Carpenters	673	833	24%	714	(14%)	711	(0%)
Construction laborers	596	638	7%	589	(8%)	551	(6%)
Helpers, carpenters	334	410	23%	350	(15%)	346	(1%)
Electricians	247	301	22%	313	4%	317	1%
Operating engineers and other construction equipment operators	320	312	(3%)	295	(5%)	264	(11%)
First-line supervisors/managers of construction trades and extraction workers	275	301	9%	271	(10%)	256	(6%)
Plumbers, pipefitters, and steamfitters	221	223	1%	204	(9%)	171	(16%)
Heating, air conditioning, and refrigeration mechanics and installers	101	106	5%	98	(8%)	81	(17%)
Brickmasons and blockmasons	86	106	23%	86	(19%)	78	(9%)
Telecommunications line installers and repairers	92	96	4%	85	(11%)	78	(8%)
Cement masons and concrete finishers	63	79	25%	82	4%	81	(1%)
Drywall and ceiling tile installers	78	102	31%	80	(22%)	84	5%
Painters, construction and maintenance	54	68	26%	63	(7%)	61	(3%)
Electrical power-line installers and repairers	55	56	2%	49	(13%)	45	(8%)
Helpers, pipelayers, plumbers, pipefitters, and steamfitters	42	41	(2%)	39	(5%)	32	(18%)
Structural iron and steel workers	43	41	(5%)	37	(10%)	33	(11%)
Excavating and loading machine and dragline operators	33	34	3%	34	0%	32	(6%)
Roofers	58	54	(7%)	31	(43%)	27	(13%)
Sheet metal workers	34	35	3%	30	(14%)	25	(17%)
First-line supervisors/managers of mechanics, installers, and repairers	29	30	3%	26	(13%)	23	(12%)
Mobile heavy equipment mechanics, except engines	27	25	(7%)	23	(8%)	20	(13%)
Crane and tower operators	20	22	10%	21	(5%)	20	(5%)
Construction managers	13	14	8%	13	(7%)	13	0%

Table 3. Cross-Industry Average Annual Opening Source: Economic Modeling Specialists Inc. (EMSI)

Description	2008 Jobs (in construction)	2008 Jobs (all industries)	Average Annual Openings 08-13 (all industries)
Operating engineers and other construction equipment operators	295	1334	24
Electricians	313	804	20
Carpenters	714	898	11
First-line supervisors/managers of mechanics, installers, and repairers	26	490	11
First-line supervisors/managers of construction trades and extraction workers	271	688	9
Helpers, carpenters	350	385	9
Mobile heavy equipment mechanics, except engines	23	382	7
Telecommunications line installers and repairers	85	263	6
Plumbers, pipefitters, and steamfitters	204	278	5
Construction laborers	589	766	5
Excavating and loading machine and dragline operators	34	324	5
Electrical power-line installers and repairers	49	136	4
Heating, air conditioning, and refrigeration mechanics and installers	98	184	3
Cement masons and concrete finishers	82	88	2
Drywall and ceiling tile installers	80	85	2
Brickmasons and blockmasons	86	99	2
Painters, construction and maintenance	63	94	1
Crane and tower operators	21	91	1
Sheet metal workers	30	51	1
Structural iron and steel workers	37	42	1
Helpers, pipelayers, plumbers, pipefitters, and steamfitters	39	41	1
Roofers	31	32	1
Construction managers	13	17	0

Table 4. Cross-Industry Wage and Education Characteristics

Source: Economic Modeling Specialists Inc. (EMSI)

Description	2008 Jobs (in construction)	Median Hourly Earnings (cross-industry)	Most significant source of skills attainment	Educational Attainment Cluster
Carpenters	714	\$13.52	Long-term OJT	HS/SC
Construction laborers	589	\$9.70	Moderate-term OJT	HS
Helpers, carpenters	350	\$9.63	Short-term OJT	HS
Electricians	313	\$20.15	Long-term OJT	HS/SC
Operating engineers and other construction equipment operators	295	\$17.53	Moderate-term OJT	HS
First-line supervisors/managers of construction trades and extraction workers	271	\$33.70	Work experience in a related field	HS/SC
Plumbers, pipefitters, and steamfitters	204	\$15.99	Long-term OJT	HS/SC
Heating, air conditioning, and refrigeration mechanics and installers	98	\$10.55	Long-term OJT	HS/SC
Brickmasons and blockmasons	86	\$13.13	Long-term OJT	HS
Telecommunications line installers and repairers	85	\$25.57	Long-term OJT	HS/SC
Cement masons and concrete finishers	82	\$13.28	Moderate-term OJT	HS
Drywall and ceiling tile installers	80	\$11.21	Moderate-term OJT	HS
Painters, construction and maintenance	63	\$13.02	Moderate-term OJT	HS
Electrical power-line installers and repairers	49	\$22.76	Long-term OJT	HS/SC
Helpers, pipelayers, plumbers, pipefitters, and steamfitters	39	\$7.73	Short-term OJT	HS
Structural iron and steel workers	37	\$18.72	Long-term OJT	HS/SC
Excavating and loading machine and dragline operators	34	\$21.25	Moderate-term OJT	HS
Roofers	31	\$13.81	Moderate-term OJT	HS
Sheet metal workers	30	\$13.16	Long-term OJT	HS/SC
First-line supervisors/managers of mechanics, installers, and repairers	26	\$19.16	Work experience in a related field	HS/SC
Mobile heavy equipment mechanics, except engines	23	\$17.69	Postsecondary vocational award	HS/SC
Crane and tower operators	21	\$13.49	Long-term OJT	HS/SC
Construction managers	13	\$30.61	Bachelor's degree	HS/SC/C

HS = High School, SC = Some College, C = College Degree



Even when an occupation is declining in terms of overall number of workers, there are still job openings made available by turnovers. From 2008-2013 the occupations with the largest number of projected annual openings (across all industries, not just construction) are *Operating Engineers* and *Electricians*, but the majority of workers in these occupations are not employed in the construction industry (see Table 3). However, these numbers are based on a pessimistic outlook for industry growth, and could change dramatically when new developments – such as the Boy Scout Camp – arise.

The median wage for all jobs in Region 1 was \$14.33/hr. Many of the key occupations in the construction industry pay near or above this median wage. However, these tend to be more skilled positions. Entry level positions, such as *Construction Laborers* and *Carpenter Helpers*, pay substantially below average. *Supervisors*, on the other hand, can earn extremely good wages in recognition of their experience. (see Table 4).

Most workers in these key occupations within construction acquire their skills through varying levels of on-the-job training. This training, particularly “long term on-the-job training,” can also include apprenticeships. However, even though occupations such as *Carpenters* and *Electricians* typically have apprenticeships associated with them, not all workers have the opportunity to complete an apprenticeship. The last column of Table 4 (educational attainment cluster) describes the education level of workers aged 25-44 employed in these occupations nationwide. As the data shows, many workers have only completed high school. Only the *Construction Managers* occupation has a noticeable percentage of workers who have completed a bachelor’s degree.

Section 2:

WORKFORCE CHALLENGES AND OPPORTUNITIES

Recession is hitting hard. By far, the most common challenge mentioned by employers within Region 1 was simply a lack of work opportunities. As reflected in the data in Section 1, and according to one employer – *“Up until recently, even though this is a largely rural area there had been slow but steady growth. Today opportunities are limited.”*

This lack of work is affecting companies across the construction industry. Very small firms found it hard to compete in an environment where some firms underbid in order to keep work coming in. Affiliated businesses that provide services and supplies to the construction firms are also suffering. However, one medium size employer reported that he was still able to remain competitive because he did not have the overhead of large firms.

While the business owners blamed the overall economic climate in general, they also pointed out specific concerns relating to West Virginia. Several described the state as not being business friendly. One employer even said that the main reason his company remained in the region is because of their proximity to Virginia, which he perceived as a better place to do business. Other specific concerns included:

- Levels of unionization
- Worker’s compensation laws
- Lawsuits
- Banking regulations

Of these, tightened banking regulations are particularly relevant to the current challenges Region 1 employers face, as these businesses felt that the tightening of banking regulations making it even more difficult for current and potential customers to get and sustain financing for projects.

Companies reported that when they did get work, it was often from outside the region – elsewhere in West Virginia, or across the border in Virginia – and that this was helping them make ends meet. Other businesses were looking to diversify and find new niches, and attributed the

ability to be flexible and adaptable to being successful in the region. One mentioned the hope that promised American Recovery and Reinvestment Act (ARRA) infrastructure investments would provide opportunities for new work.

Employers reported that it was “hard to get good quality smart people with staying power and drive,” and that “no one wants to get dirty and learn construction trades.”

Given this economic climate, it is unsurprising that businesses were reporting low to moderate demand of workers right now. However, nearly all were optimistic that demand would increase. If not in the short term (2010-2011) – with one-third projecting no changes in hiring; one-third projecting a slightly increased need for more workers; and one-third projecting a need for many more workers – then in the long term (2011-2015), when 33% anticipated needing slightly more workers and 50% projected needing many more.

Shortage of Skilled Workers

When hiring new workers, many employers will face difficulties finding well-qualified workers to meet their employment needs. Across the board, construction employers reported a lack of skilled workers within the region. While 50% reported a lack in sheer number of applicants, 100% reported a shortage of applicants with the right skill sets. While there were gaps noted in occupation-specific skills, the much more common concern was for a “lack

of adequate work ethic.” Employers reported that it was “hard to get good quality smart people with staying power and drive,” and that “no one wants to get dirty and learn construction trades.” Key components of work ethic that employers saw as missing included things such as showing up on time and working hard when unsupervised.

The low population of the region limits the pool of potential workers even before skills are considered. When compounded with low literacy levels and social issues, including drug abuse reported by some employers, the pool of potential applicants is even smaller. Some employers must recruit from outside the area to fill skilled positions. High turnover rates only add to concerns, with most workers staying 4 years or less at a single company.

Employers believe the educational system in the state should have a role to play in instilling good work ethic, and some expressed concern regarding the overall quality of education within the state. Most employers surveyed said that the region’s education and training institutions are not able to meet demand for producing new applicants or upgrading the skills of existing workers.

This lack of education and skills training opportunities is reflected in the educational completions data that follows (see Table 5). There are few post-secondary educational programs in the region that prepare workers

for jobs in construction. Those that do have relatively small numbers of completions. With the high rates of unionization in the state, workers have historically been more likely to acquire their skills through union-based apprenticeship programs. However, at this time, the region does not offer apprenticeship programs; the closest programs are located in Parkersburg, including the Mid-Atlantic Regional Council of Carpenters and the WV Construction Craft Laborer’s.

As a result, there appears to be high demand for other forms of education and skills training. Employers listed the following specific training needs:

- Construction education/certifications and skill level enhancement
- Lead carpentry
- Masonry
- Plumbing
- Sales
- Computer training

Many employers highly value certification and formal education, but they are more likely to hire based upon work ethic and “fit.” Employers then provide training opportunities to new hires to compensate for skill inadequacies. When this training occurs, it is predominantly through on-the-job training. This preference may be because there

Table 5. Construction Program Completions, 2007-2008 Average

Source: National Center for Education Statistics

Description	Institution Name	Average completions
Masonry/Mason	Academy of Careers and Technology	1
Electrician	Academy of Careers and Technology	12
Electrician	Mercer County Technical Education Center	13
Building/Construction Trades, Other	Academy of Careers and Technology	1
Heating, Air Conditioning, Ventilation & Refrigeration Maintenance Technology/Technician (HAC, HAC)	Academy of Careers and Technology	2

Table 6. Critical and Hard-to-Fill Occupations

■ Construction Managers	■ Construction Laborers	■ Concrete workers
■ Supervisors	■ Equipment operators	■ Drywall workers
■ Masons	■ Plumbers	■ Truck drivers
■ Carpenters	■ Drafters	

simply aren't enough certified workers matriculating from the region's educational institutions.

Some employers stressed that construction workers can make a very good living (see Section 1, Table 4 for wage data), and that this is a good career path which is underutilized in the region. While the employer cited many different specific occupations needed, there were several occupations that emerged as being particularly critical or hard-to-fill. These are summarized in Table 6.

Going Green

When asked about changing skill needs, most employers said the work hasn't changed much. As one interviewee explained, "*Construction work is still construction work.*" However there is some evidence that the growing shift towards "green" or energy efficient construction is impacting the industry in Region 1.

Only one employer specifically mentioned anticipating a need for, "*Green building installers and technicians*" in the future. However, one-third of the interviewed employers stated that green technology and practices were very important to their business. Another two-thirds said it was somewhat important. Additionally, two separate employers mentioned green building as a possible opportunity for entrepreneurs in the region, citing both provision of supplies as well as green-certified contractors as examples.

Growing Reliance on Technology

Virtually all employers described computers as integral business tools for the construction industry. Examples of computer usage across the industry included:

- Cost estimation
- Three-dimensional models
- Work flow
- CAD
- Order supplies
- Payments
- Quoting
- Drafting
- Record keeping

Within construction firms, use was often limited to one or two workers who specialized in using company-specific software. Some firms stated that all employees needed to be comfortable with using computers and the Internet. Office workers, in particular, are required to have at least basic computer knowledge. In other related firms, such as real estate developers, all employees needed to be computer savvy. While a few employers contracted out for IT help, namely web design and networking services, many managed these functions in house.



Conclusions and Recommended Actions

In the face of the global economic recession, construction employment in the region has declined sharply since peaking in 2006, and today, employers struggle to find enough work to keep their businesses going. Residential building construction has been the hardest hit subsector, although nearly all industry subsectors have experienced declines as well. Employers are optimistic that business will pick up, and the recently announced *Boy Scouts of America* facility will bring with it several thousand construction jobs. A few employers also anticipate increased demand related to “green” jobs.

However, when business demand returns, employers may face challenges filling their job openings with adequately skilled workers. Employers expressed concern over work ethic, drug use and literacy, as well as the ability of area education and training programs to fully prepare workers. The occupations employers find most important and hard-to-fill are skilled, and relatively well paying, positions such as carpenters, masons, equipment operators, and plumbers.

Recommended Actions

The recommended actions below are geared towards a broad stakeholder audience of workforce development, employers, education, government, community-based and economic development actors, each of which may have a role to play in carrying out different recommendations.

- ✓ **Convene industry partnership to verify findings, learn more, and collaboratively address workforce challenges facing the region.**
Employers surveyed expressed interest in becoming involved in an industry partnership that would help them identify common workforce challenges (i.e., skill training, recruitment, talent pipeline, talent retention, etc.) and work together on solutions.
- ✓ **Connect with education and training providers to determine root causes for the small variety of program offerings.**
Further research is required to understand the decreased role of apprenticeship in the industry, and how local education and training providers can support those programs or provide alternatives depending on employer and worker demand.
- ✓ **Promote and/or develop programs such as soft-skills training and career readiness certificates.**
There are several programs already in place, such as the WV Career Readiness Certificates (utilizing Work Keys), SPOKES Program (Strategic Planning in Occupational Knowledge for Success) offered through Adult Basic Education, and WORK 101 and WORK 102 offered through the community college system. Public awareness needs to be raised throughout the region via media and promotional campaign efforts regarding the importance and value of attaining these credentials.

- ✓ Work with the K-12, adult education, and postsecondary education systems to ensure they prepare students with strong foundational skills.

In our global economy, job skill requirements are changing at an ever increasing rate.

Workers need to gain new knowledge and learn new skills throughout their career. This need for life-long learning makes strong skills in math, reading, problem solving, and critical thinking ever more important as the foundation for all future learning. Students and workers must “learn how to learn”.

- ✓ Identify and capitalize on funding for infrastructure improvements.

Federal stimulus money has been and is being made available for state-funded infrastructure improvements. Taking advantage of these opportunities could allow the region to sustain its construction industry while also improving overall business competitiveness and quality of life.

- ✓ Conduct a marketing and education campaign to promote high wage potential and career path opportunities in the industry.

Although there are many well paying jobs in construction and skilled trades, the industry suffers from an image problem. Programs targeted at youth can help to identify the many positive aspects of jobs within the construction industry. There may be opportunities to partner with middle school and high school initiatives including the “Exploring Technology” and “Career Explorations” courses.

- ✓ Establish and support “green jobs” training programs within the region.

While only a few employers emphasized the need for green workers at this point in time, national data indicates that demand for workers in weatherization and other green industries will only increase. In most cases, these are not entirely new occupations. As such, there may be opportunities for training providers to offer programs focused on “up-skilling” existing workers, enabling them to add “green” components to their work.

Community college and university programs with a “green” sustainability focus are beginning to emerge across the country. These programs could serve as benchmarks for the region’s post-secondary system. Examples of some of these benchmarks can be found in the report by the National Council for Workforce Education and Academy for Educational Development entitled *Going Green: The Vital Role of Community Colleges in Building a Sustainable Future and Green Workforce*, available at <http://www.ncwe.org/2007/11/19/going-green-building-a-green-workforce/>.