

REGIONAL TALENT RETENTION & ECONOMIC GROWTH STRATEGY

VOLUME 1: STRATEGIC ACTION PLAN



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CONTENTS

- 1: INTRODUCTION 1
 - APPROACH..... 1
 - KEY FINDINGS..... 2
 - PLAN FOR ACTION 6
 - CONCLUSION 7
- 2: STRATEGIC ACTION PLAN 9
 - GOAL 1: ENHANCE THE REGIONAL TALENT MANAGEMENT SYSTEM. 11
 - GOAL 2: STRENGTHEN THE REGION’S BUSINESS DEVELOPMENT CAPACITY..... 14
 - GOAL 3: EXPAND CRITICAL INFRASTRUCTURE TO SUPPORT NEW INVESTMENT AND DEVELOPMENT. 18
 - GOAL 4: ENHANCE “QUALITY OF PLACE” THROUGHOUT THE REGION. 20
- 3: IMPLEMENTATION MATRIX 23
- 4: PERFORMANCE MEASURES 31
- 5: APPENDICES..... 35
 - APPENDIX A: EMPLOYER SURVEY 36
 - APPENDIX B: INDUSTRY TARGETING 44

1: INTRODUCTION

Workforce Solutions Northeast Texas engaged TIP Strategies to prepare a long-term economic strategy to retain skilled workers within the region and maximize opportunities for industry growth. A major impetus for the planning process was proposed reductions in the workforce of the Red River Army Depot (RRAD). RRAD is an industrial complex, located in Bowie County, Texas, which provides responsive and innovative solutions for the US Department of Defense (DOD) in repair, overhaul, remanufacture, and conversion of combat systems and tactical vehicles. The installation currently has approximately 6,400 employees, and is the largest employer in the region.

Continued cuts to federal defense spending are expected to result in workload reductions at RRAD over the next few years. The reduction in workload may cause the loss of hundreds of jobs at RRAD, with the potential to leave a large number of these workers unemployed as the region's employment base may not be able to absorb them. Without aggressive action to increase employment opportunities locally—through the expansion of existing employers or the attraction of new firms—these skilled workers may be drawn to the broader job markets of neighboring metropolitan areas, such as Dallas-Fort Worth and Little Rock, or by the boom in construction and oil and gas employment in South Texas and along the Gulf Coast.

APPROACH

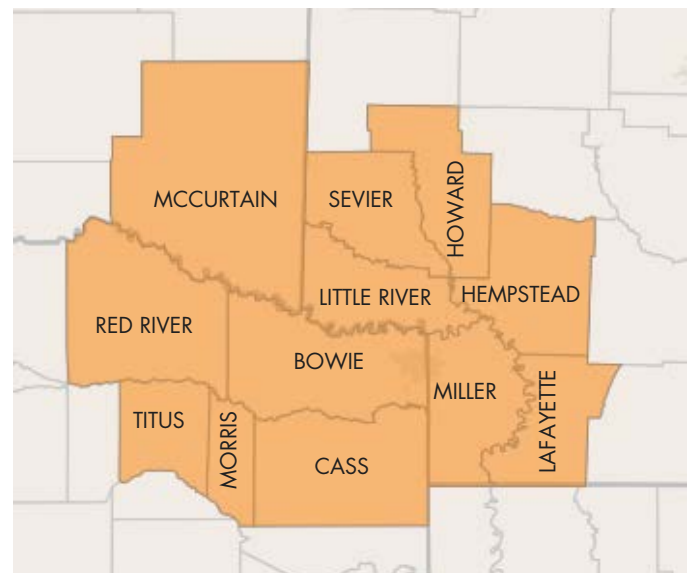
The plan was developed over a nine-month period. Primary funding for the project was obtained by Workforce Solutions Northeast Texas under a Defense Industry Adjustment grant from the DOD's Office of Economic Adjustment (OEA). To help secure the OEA award, many regional organizations contributed partial matching funds. The planning process included a review of economic and demographic data for the region, as well as extensive input from stakeholder groups. The consulting team conducted several interviews, roundtables, and workshops. Additional input from employers was gathered via a web-based survey distributed by the Texarkana USA Chamber of Commerce, the results of which are summarized in Appendix A.

Understanding the skills sets of RRAD workers likely to be affected by a reduction in workload and illustrating the economic and social impacts of a mass layoff at the installation were essential elements of the project. Data on the RRAD workforce by job

FIGURE 1: REGION OF IMPACT

12-COUNTY STUDY AREA

The region of impact defined for this study includes five of the nine Texas counties served by Workforce Solutions Northeast Texas (Bowie, Cass, Morris, Red River, and Titus), and extends into Arkansas (Miller, Lafayette, Hempstead, Howard, Little River, and Sevier), and Oklahoma (McCurtain). The region of impact is a reflection of data received directly from RRAD on the ZIP code of residence of its workforce.



series was supplied by RRAD and translated to standard employment classifications. The resulting analysis provides an understanding of the skills, work activities, and tools and technologies typically used by the affected occupations. In addition, we used national staffing patterns to identify the types of industries that are likely to employ these workers. Finally, an estimate of the impact of a singular substantial job loss was modeled using input-output modeling. Highlights of the various analyses are presented below, with additional details provided in *Volume 2: Technical Analysis*, published under separate cover.

KEY FINDINGS

The central issue affecting the region's long-term economic vitality is its ability to retain and foster a skilled workforce. Workload reductions at RRAD and continued uncertainties about the federal defense budget dictate that talent development and retention should be the central focus of regional economic development efforts. This approach is reinforced by the findings of our work which are highlighted below.

- **Texarkana plays a key role in the region.** The Economic Assessment presented in Volume 2 points to Texarkana's role as a regional hub for employment and services. An analysis of commuting patterns reinforces Bowie County's position as an employment center, drawing in more than 25,000 workers from neighboring counties each year to jobs in multiple industry sectors. Miller County also has a relatively large share of inbound commuters in percentage terms, though the county "exports" slightly more workers than it draws in. Texarkana also serves a regional center role, based on above-average concentrations of employment in health care and retail trade.
- **Manufacturing remains an important source of employment.** Manufacturing is the largest industry in the region in terms of employment, accounting for more than 22,000 jobs in 2013. However, unlike the industries listed above, the bulk of the region's manufacturing workers are employed outside Texarkana. Titus (TX), Howard (AR), and McCurtain (OK) are the top counties for employment in the sector, with each having between 2,600 and 5,300 jobs in 2013. The sector's role in the job base can be seen in the above-average concentration of multiple production occupations in the region.
- **Population levels have ticked up steadily in recent years.** Following 20 years of little to no growth, the 12-county region as a whole has experienced modest gains in recent years. Current growth rates are expected to continue throughout the remainder of this decade, with the region's total population approaching 345,000 by 2020, an increase of more than 12,000 residents since 2010. While they exceed the prior decade by a wide margin, these modest gains pale in comparison to the 1970s, which brought a surge of population to the region resulting in a net gain of 50,000 residents over the course of the decade. With a population of more than 93,000, Bowie is the largest of the counties and one of only a handful in the region that has experienced population growth in each decade since 1960. Net domestic migration—the movement of people into the county from other parts of the US—has played an important role in Bowie County's growth in the past 10 years, further reinforcing the importance of a talent-focused strategy. One economic development marketing challenge related to population data stems from the cities of Texarkana being separated by a state line. Standard sources of demographic data do not show a

combined population figure for “Texarkana,” which makes the population of the community appear smaller than it really is.

- Like many parts of the country, the region’s largest and fastest-growing occupations (in numeric terms) are population-driven.** Examples of jobs that are closely tied to population include retail salespersons, food service positions, and cashiers, as well as healthcare workers and teachers. Beyond these population-driven occupations, four industrial job titles—truck drivers, freight handlers, meat cutters, and maintenance workers—are among the region’s top 15 largest occupations. And, like most regions, the vast majority of the study area’s largest occupations have relatively low wage rates, with only two of the 15 largest occupations offering hourly wage rates in excess of the regional median of \$15.62 per hour.
- A singular substantial job loss at RRAD would have a dramatic effect on the regional economy.** As stated previously, RRAD is the largest employment generator in the region. Scenario modeling suggests that a major downsizing at the installation—defined here as a 2,000-person layoff—would result in more than 1,500 additional losses throughout the 12-county region beyond the initial cuts. In addition to losses of \$178 million in earnings resulting from the initial job losses, the “ripple” effect on the RRAD supply chain and reduced spending by the affected workforce would lead to the loss of an additional \$55 million in earnings under this scenario. Results of the analysis are summarized in Figure 2, with additional details presented in Volume 2, Appendix A.
- Aggressive action will be required to counter the impacts of a slowdown at RRAD.** To help understand the impact from an occupational standpoint, we compiled data from RRAD on the types of positions that would be affected by a reduction in workload. This analysis identified 14 individual occupations affecting as many as 1,350 federal civilian employees. Heavy equipment repair workers are the largest group, representing roughly 850 workers. Other affected positions include a number of occupations that are in demand nationally, such as welders, machine tool workers, and forklift operators. However, the sheer number of affected workers could make re-employing them in the region a challenge. For example, based on current projections of demand for heavy equipment mechanics, it would take more than 20 years to re-employ the existing workers in the same occupation locally. Moreover, the prevailing wages of workers performing similar functions in the region are not likely to compare favorably with pay scales at RRAD.

FIGURE 2: SUMMARY OF MODELED IMPACTS

IMPACT ACROSS 12-COUNTY REGION FROM A 2,000-PERSON LAYOFF (FEDERAL CIVILIAN EMPLOYEES)



Source: EMSI, TIP Strategies

- **Employers are generally positive about the regional workforce.** To better understand local workforce-related opportunities and challenges, an online survey was conducted as part of the strategic planning process. Although not scientific, the employer survey suggests that Texarkana-area employers largely hold positive opinions of the quality of the local workforce. When asked to rate the local workforce on a variety of characteristics, including productivity, reliability, and communication skills, approximately one-half of respondents provided either a fair, good, or excellent rating across all categories. Areas that received more strongly positive ratings (a least one-third of respondents answering good or excellent) were productivity, teamwork skills, flexibility, and computer skills. Categories in which the workforce was viewed less positively included entry-level skills, attitudes, communication skills, and math skills. One-third of respondents found workforce professionalism to be poor.
- **Hiring plans of regional employers are mixed.** When asked about future hiring plans, two-fifths of respondents (42 percent) indicated they planned to hire additional employees within the region in the next 12 to 24 months. The remainder were either not sure (33 percent) or not planning to make any hires (25 percent). Of the more than 650 new hires planned, just over one-half are expected to be unskilled workers or laborers. Clerical and administrative workers are expected to be the next largest group of hires, accounting for roughly one-third of the jobs respondents anticipate adding.
- **The regional workforce is well aligned with a number of target sectors.** The region's occupational structure and the skills of workers likely to be affected by reductions in workload at RRAD point to opportunities in a number of sectors, including:
 - ◆ Agribusiness & Food Processing
 - ◆ Logistics & Distribution
 - ◆ Energy (Services & Manufacturing)
 - ◆ Machinery
 - ◆ Transportation Equipment
 - ◆ Fabricated Metal

An analysis of staffing patterns suggests that, with few exceptions, capacity is available in the leading occupations employed by each sector. Occupations with potential capacity constraints include a number that are associated with oil and gas exploration. The analysis also identified several occupations that cut across multiple sectors, suggesting potential targets for training and talent retention initiatives.

A summary of regional strengths, weaknesses, opportunities, and threats (commonly referred to as a SWOT analysis) is presented in Figure 3 (page 5). In addition to the various quantitative analyses highlighted above, our work on the SWOT was informed by interviews with local economic developers, regional employers, workforce professionals, and other regional experts, as well as input from meetings conducted with the project team over the course of the engagement. An opportunity workshop, held in May 2014, provided the foundation for the preparation of the Strategic Action plan.

FIGURE 3: SWOT ANALYSIS

SUMMARY OF REGIONAL STRENGTHS, WEAKNESS, OPPORTUNITIES, AND THREATS



Source: TIP Strategies, based on stakeholder input solicited via workshops, roundtables, and interviews

PLAN FOR ACTION

The project steering committee emphasized the need for a limited number of strategies and actions that can be realistically implemented by regional economic development partners. Additionally, the consulting team was asked to align the strategies with plans and programs the TexAmericas Center and the Texarkana USA Chamber of Commerce are independently developing to guide their own activities. Based on the findings outlined above and the input from regional stakeholders, we have organized the regional strategy around the four key ingredients for economic competitiveness: talent, business development capacity, infrastructure, and quality of place. These ingredients form the basis for each of the four goals. Under each goal, the consulting team has recommended achievable strategies that will foster a more robust and diverse regional economy.

1. Enhance the regional talent management system.

Broadening and deepening the Texarkana region's talent pool is essential for economic competitiveness. Employers must be confident they will have access to skilled and reliable workers if they are to consider new or expanded investment. This goal seeks to build on existing initiatives designed to develop, retain, and attract talent. Priority strategies include retaining workers who may be dislocated from RRAD, strengthening business and education partnerships, raising awareness of middle-skills career opportunities among residents, and engaging young professionals in civic and economic affairs.

2. Strengthen the region's business development capacity.

The timing for the development of this strategy coincided with new plans and efforts to re-energize regional business development programs in the area. This includes business recruitment activities by the TexAmericas Center and business retention and expansion activities by the Texarkana USA Chamber of Commerce. Again, this goal seeks to complement and align recommendations with ongoing recruitment, retention, and expansion efforts. In addition, the goal outlines strategies for promoting international marketing, small business development and entrepreneurship, and rural economic development capacity.

3. Expand critical infrastructure to support new investment and development.

Economic development infrastructure is a relative strength for the region. Interstate highway access and available development-ready industrial land are among its chief assets. Nevertheless, infrastructure enhancement is necessary to improve competitiveness for new investment. The plan recommends strategies for addressing such needs as the development of shovel-ready sites, securing industrial water rights at TexAmericas Center, ensuring the completion of I-49 and I-69, and expanding broadband infrastructure.

4. Enhance quality of place throughout the region.

To successfully compete in the high stakes war for talent, the Texarkana region must continue enhancing the amenities necessary for attracting and retaining residents. The region already offers abundant outdoor recreational activities and arts and culture venues. It is also a growing regional center for retail, healthcare, and education. However, young adults expressed to the consulting team that the area

lacks desired entertainment and nightlife options. The continued decline of Texarkana's urban core is an ongoing concern. But, reversing this decline may involve a realistic appraisal of whether downtown Texarkana can still be considered the community's central business district or if its focus should be as an entertainment district. Beyond downtown, community partners should continue attracting and expanding education, healthcare, and retail amenities. Aggressively marketing assets and amenities to both internal and external audiences will also strengthen Texarkana's position as a regional center.

CONCLUSION

For decades, the Red River Army Depot has been the most important economic engine in the Texarkana region. While there is no suggestion that RRAD will not continue in this role for years to come, concerns about federal defense spending and Army downsizing mean the region must invest more in economic development to expand private investment and employment opportunities. This will involve a comprehensive approach that addresses talent, business development, infrastructure, and quality of place. The approach will also have to become more regional in nature, leveraging assets in multiple states.

STRATEGIC ACTION PLAN



Retaining the affected RRAD workforce and promoting long-term economic growth in the region will require a determined, collaborative effort. This action plan addresses these objectives along four goals: 1) enhancing the regional talent management system that assists existing RRAD workers and deepens the pool of skilled talent for existing and future employers; 2) strengthening business development capacity to support retention, expansion, and recruitment; 3) ensuring critical infrastructure such as water, transportation, and broadband is expanded to meet the needs of future investors and employers; and 4) enriching quality of place assets and amenities to make the region more competitive for attracting and retaining residents.

GOAL 1: ENHANCE THE REGIONAL TALENT MANAGEMENT SYSTEM.

The overarching purpose for developing this plan is to ensure the region’s economy continues expanding so that it can absorb and retain RRAD workers who may be adversely affected by military downsizing. Current and future economic growth in the Texarkana region depends to a large extent on workforce quality and availability. Access to talent continues to be the primary site location factor for employers seeking new locations to invest, especially those requiring technically skilled and educated workers.

The challenge of attracting and retaining workers in the Texarkana region is particularly difficult given the fierce competition for talent posed by surrounding regions. The explosion of oil and gas exploration, production, and refining in parts of Texas, Oklahoma, and Louisiana is driving considerable demand for workers to fill high-wage middle-skill jobs, especially in construction and skilled trades. In addition, booming metropolitan areas such as the Metroplex and Oklahoma City continue to attract young educated professionals in search of higher salaries and greater career development opportunities.

The growing external demand for skilled talent is echoed in the results from the Employer Survey conducted as part of this planning effort (Appendix A). When asked what skills/occupations existing Texarkana area employers anticipate needing in the future, construction/skilled trades, engineering/technical, and sales/marketing were the most frequently cited.

Indeed, workforce availability is already recognized within the region as a critical economic development issue. Efforts led by Workforce Solutions Northeast Texas and area educational institutions have resulted in such initiatives as the P-16 Advisory Council, Make it Work in Texas, and other specialized workforce training programs. The emphasis of this goal is to enhance these existing initiatives and programs as well as to recommend potential new initiatives to broaden and deepen the region’s talent pool.

FUTURE OCCUPATION/SKILLS NEEDED (Q12)

Skill/occupation	# of responses	# of firms
Construction/skilled trades	8	5
Engineering/technical	5	3
Sales/marketing	5	5
Fitness/recreation	3	1
Repair & maintenance	3	2
Healthcare (practitioner/technical)	3	1
Finance/accounting	3	3
IT/computers	3	3
Management	2	2
Legal	1	1
Business support	1	1
Production	1	1

1.1. Retain RRAD workers affected by military downsizing.

- Raise awareness and connect RRAD employees with existing workforce programs and resources.

- Establish a re-employment initiative, including a mechanism for assessment/intake for workers and job postings for employers. The adjacent text box describes a similar initiative launched by the Calhoun County Chamber of Commerce to address dislocated workers at the Anniston Army Depot.
 - Coordinate with training providers to identify skills training needed to transition workers to other occupations.
- 1.2.** Align education and training needs with existing and targeted industries.
- Continue developing customized training programs (e.g., Regional Advanced Manufacturing Academy) to support the needs of existing employers.
 - Identify potential additional on-site training and education opportunities at the RRAD/TexAmericas Center.
 - Look for local strengths that could form the basis for centers of excellence that match with employers' needs.
- 1.3.** Raise awareness and perception of middle-skills career opportunities. Middle-skills jobs are those that require at least a high school diploma but less than a four-year degree.
- Continue promoting the "Make it Work in Texas" campaign.
 - Build analytics into the campaign so that effectiveness can be measured and strategies/tactics can be modified to improve results.
 - Consider expanding target audiences (e.g., community college students, adults in the workforce system or enrolled in other training programs, high school and college dropouts, veterans separating from service).
- 1.4.** Strengthen business and education partnerships.
- Reenergize the Texarkana Regional P-16 Advisory Council. Notable past achievements of the Texarkana P-16 Council include the development of a Cooperative Bachelor of Science in Mass Communication, a 2+2

OPERATION 1ST RATE

Located in Anniston, Alabama, the Anniston Army Depot is one of a small number of US Army installations in the country charged with neutralizing or destroying the country's chemical weapons stockpiles. Due to job losses from the conclusion of the chemical weapons incineration program and a reduction in workload resulting from cuts in defense spending, the East Alabama Regional Planning and Development Commission (EARPDC), together with the Calhoun County Chamber of Commerce, applied for and received a grant from the Office of Economic Adjustment (OEA) to help retain these workers in the region.

As part of the OEA grant, the EARPDC and the Chamber engaged TIP Strategies to document the skill sets of the affected workers and prepare a regional strategy to connect those skills with the needs of current and future employers. A critical element of the project included helping the Chamber set up a job-matching system as part of its Operation 1st RATE (O1R) initiative. Through this innovative program, the Chamber provides one-on-one assistance to job seekers at multiple locations. In addition to personal assistance, O1R hosts job fairs and maintains a website that provides timely information for area job seekers. The site includes a robust JobStation with a searchable job listing connected to EMSI's Career Coach, one of the industry's top job search site integrator and resume builder systems. Since its operations began in 2011, the initiative has placed more than 900 of the affected workers with local employers.

Environmental Science Program, a Performing Arts Degree, veteran transition programs, and job fairs. In recent years, however, the regional council has become less active. Reengaging the business community with all levels of education would help to educate and train area students with the knowledge and skills needed by both existing and future employers.

- Establish an annual Workforce Development Summit to focus on critical regional workforce issues and solutions.
 - Continue visiting with existing employers to ensure they are made aware of workforce development programs and incentives by Workforce Solutions Northeast Texas and other workforce training and education partners.
 - Create additional apprenticeship and/or internship programs for young adults focused on advanced technology and middle-skills jobs.
- 1.5.** Identify and promote opportunities for emerging leaders and young professionals to engage in civic and economic development affairs.
- Continue supporting the growth of the Greater Texarkana Young Professionals (GTYP) network. Support GTYP’s civic engagement activities, such as promoting technology education in the region.
 - Establish a Next Generation Task Force comprised of professionals and volunteers in their 20s and 30s to understand the primary barriers to this generation’s civic engagement and design innovative methods of outreach and engagement.
 - Encourage emerging leaders to apply for seats on local boards and commissions by hosting workshops on the importance and relevance of various boards and commissions and providing information on available positions.
- 1.6.** Recruit former students at local colleges, universities, and high schools to “come home” by highlighting and promoting regional employment options/opportunities.
- Utilize alumni networks (e.g., Texas A&M Texarkana Alumni Association) and social media to highlight new business investments and employment opportunities.
 - Develop marketing materials and a quarterly newsletter to inform former residents of opportunities and current events in the region (e.g., job postings, business expansions, investment opportunities, planning initiatives).

REACHING OUT TO FORMER RESIDENTS

A successful talent attraction strategy reaches out to former residents and others with existing ties to the Texarkana region. First, the target audience already has a familiarity with the region. Second, individuals with strong ties to the region, especially young professionals with families, may already wish to relocate if given a clear opportunity. Third, these individuals can be easier to reach through existing social networks and, therefore, less expensive to target.

GOAL 2: STRENGTHEN THE REGION'S BUSINESS DEVELOPMENT CAPACITY.

In order to successfully retain skilled workers and maximize opportunities for industry growth, implementation of a long-term comprehensive regional economic development approach is essential. This includes business retention and expansion as well as attraction. This effort is made more difficult because of the multi-state, multi-jurisdiction nature of the Texarkana region. Regional economic development is appealing in theory, but its practical application on the ground is often challenging. It requires collaboration, trust, and a collective belief that new investment and employment in one area benefits the wider region. These sentiments have not always prevailed in the RRAD region.

Fortunately, new leadership and expertise at the Texarkana USA Chamber of Commerce and the TexAmericas Center (TAC), respectively, raises the prospect for greater regional economic development cooperation. Specifically, the Chamber is focusing a renewed emphasis on business retention and expansion (BRE). Likewise, the TexAmericas Center has developed a new business recruitment and attraction strategy that leverages regional assets and workforce. Along with talent development efforts led by Workforce Solutions of Northeast Texas and educational institutions, these initiatives provide real synergies for advancing regional economic growth.

2.1. Establish a comprehensive Business Retention & Expansion program led by the Texarkana USA Chamber of Commerce.

- Focus initially on Texarkana businesses, and then gradually expand efforts regionally.
- Develop and maintain a database of existing primary employers (i.e., businesses that produce more goods and services than can be consumed by the local economy and, therefore, export a significant portion of them). The database should be continually expanded to include companies in the area that serve external markets or are suppliers to existing primary employers.
- Utilize a customer relationship management (CRM) software system to manage contacts and monitor business issues and concerns. Widely used CRM programs include Sage Act!, Synchronist, Salesforce.com, and Insightly.
- Prepare and administer an annual online "Take the Pulse" business survey as a means for keeping in touch with local businesses and documenting specific needs or expansion plans. Include questions regarding employer attitudes toward business climate, talent availability, and workforce quality.
- Formalize an on-site employer visitation program to build relationships with key employers. The Chamber should set a goal of meeting with at least 50 employers each year. Business visitations should be prioritized using criteria such as employer size, employer growth rates (if known), and target industries.

BUSINESS RETENTION AND EXPANSION

A vibrant BRE program should be the cornerstone of any economic development program. When existing businesses thrive, so does the community. The U.S. Chamber of Commerce estimates that 40 to 80 percent of all new jobs are created by existing firms. Prosperous, competitive businesses are more likely to remain and grow in the community, providing the best opportunity to expand a community's tax and employment base.

The visits should be structured to gauge the abilities and needs of local businesses to operate successfully and expand in the Texarkana region.

- Develop a questionnaire to best capture critical information from executives and owners during business visitations.
- For those employers with headquarters located outside of the region, establish relationships by meeting face to face with executives.
- Continue hosting periodic roundtable discussions, including CEO Breakfast events, giving business leaders the opportunity to personally interact with area economic development partners. Informal roundtables often stimulate topics of discussion that a survey or questionnaire cannot.
- Develop a regional “in sourcing” program to match area companies looking for goods and services with other area companies.
- Periodically review development regulations, ordinances, and approval processes to ensure that municipal and county governments are being responsive to the small business community.
- Develop an “early warning” and “rapid response” strategy for identifying and responding to potential layoffs or plant closures. Identify “at-risk” companies early on, and develop an aggressive intervention strategy. Create a team composed of stakeholders that have the ability and authority to address employer needs.

2.2. Formalize a regional business attraction program led by TexAmericas Center.

- Support the investment attraction initiatives laid out in the TAC 2014 Strategic Plan. Priority strategies and actions include:
 - ◆ Building awareness among decision-makers in target industries. An analysis of staffing patterns for affected RRAD occupations points to an alignment with **transportation equipment, metal-working, machinery manufacturing, and wholesale distribution**. Regional strengths and national trends also point to opportunities in **energy**, both in manufacturing and services, and **food processing** and related industries. (See Appendix B.)
 - ◆ Expanding relations and actively participate in joint marketing efforts with regional economic development organizations (e.g., TEDC, NETEDR, SWEPCO, GWRR, UP, KCS, Centerpoint, and Arkansas counterparts).
 - ◆ Establishing a prospect management system using a CRM.
 - ◆ Developing a targeted industry sales & marketing plan.

TEXAMERICAS CENTER 2014 STRATEGIC PLAN

In partnership with regional stakeholders, TAC developed a strategic plan in 2014. The top five priorities of the plan are to (1) create a thriving business climate, (2) provide a 21st century workforce, (3) deliver world class infrastructure, (4) get globally connected, and (5) attract investment. The plan outlines numerous strategies and actions for TAC to implement over a 10-year period.

- ◆ Design a set of marketing materials tailored for new business investment prospects, especially in target industries.
- ◆ Create a database of developers, brokers, and site consultants.
- ◆ Call on site consultants in the DFW Metroplex and other targeted metropolitan areas.
- ◆ Host events that showcase TAC assets, such as available land and buildings or new projects. Local and regional developers, site consultants, and industrial and commercial brokers should be invited to attend.
- ◆ Join the North Texas Commercial Association of Realtors and Real Estate Professionals (NTCAR) as an affiliate member (\$375/year) in order to network with DFW-area commercial brokers and site selectors. In addition, TAC should exhibit at NTCAR Commercial Real Estate Expo. With 1,500 attendees, this event is the largest commercial real estate trade show in the Southwest, according to NTCAR. In the future, AEDC may consider its own membership in NTCAR.
- ◆ Refresh the TAC website to continue incorporating data and information considered essential by site location consultants and corporate real estate managers.

2.3. Develop an international marketing and awareness campaign.

- As part of the BRE survey program (Strategy 2.1), include a section addressing international trade, supplier, and investment linkages. Ask if companies would be willing to assist in international recruitment efforts.
- Build on existing international connections of exporters and foreign companies within the regional economy.
- Create an inventory of regional companies with foreign connections.
- Continue utilizing the overseas relationships of existing companies operating in the Texarkana region—including clients, suppliers, and employees—to identify and make contact with potential prospects.
- Strategically attend international industry events, conferences, and trade shows.
- Reactivate Foreign Trade Zone #258 and create a sales and marketing plan to leverage it.

2.4. Promote entrepreneurship and small business development.

- Review the 2008 assessment conducted by TIP to evaluate progress made on implementing recommended strategies.
- Update the implementation guide to reflect strategies that have been implemented as well as those that have not.

ASSESSMENT OF RURAL ENTREPRENEURSHIP

In 2008, TIP authored an Assessment of Rural Entrepreneurship in Northeast Texas and Southwest Arkansas on behalf of Workforce Solutions Northeast Texas. As part of this assessment, TIP mapped the entrepreneurial assets of the region, identified gaps in service, and made recommendations on how to better promote entrepreneurship in the region.

To address these gaps, TIP recommended three primary goals: (1) Develop an entrepreneur development system, (2) augment support services, and (3) promote and more entrepreneurial climate and culture. A number of strategies and actions were outlined to support each of these goals.

- Continue to promote and leverage existing entrepreneurship and incubator programs in the region.
- Create opportunities for local entrepreneurs to learn from and support each other, such as mentoring and networking groups.
- Raise awareness of resources available to entrepreneurs and provide educational opportunities for area small businesses.
- Develop incentives and facilitate financing for entrepreneurs and startups.
 - ◆ Consider establishing a Revolving Loan Fund (RLF) to provide operating capital for small developing companies in the region. To help capitalize an RLF, apply for a grant from the Economic Development Administration through the agency's Revolving Loan Fund program.
 - ◆ Create opportunities for entrepreneurs to meet regional investors. Establish a forum where pre-screened, well-qualified entrepreneurs can make pitches to an audience of investors.

2.5. Build economic development capacity in the rural areas of the region.

- Build a contact database of leadership and strengthen relationships with rural communities.
- Hold a regular forum for rural leaders in economic development to exchange ideas, discuss best practices, and learn about innovative approaches used in other communities.

GOAL 3: EXPAND CRITICAL INFRASTRUCTURE TO SUPPORT NEW INVESTMENT AND DEVELOPMENT.

First-class infrastructure and reliable resources are essential for competing for new investment. An area may not meet threshold site location criteria if it lacks sufficient and reliable water, wastewater, power, broadband, roads, rail, air, and waste disposal. In addition to business attraction and retention, infrastructure is critical to supporting population growth, workforce commuting, education, tourism, as well as local trade and commerce.

For economic development to occur it has to go somewhere (i.e., sites and buildings). TexAmericas Center is already one of the largest mixed-use business parks in the US. TAC offers more than 12,000 acres of land (2,000 development-ready acres) and 3 million square feet of commercial and industrial product. Transportation connections include two Interstate highways (I-30 and I-49), two Class 1 rail carriers (Kansas City Southern and Union Pacific), and Texarkana Regional Airport.



Despite the abundance of raw acreage, TAC has few large shovel-ready sites that can immediately accommodate development. Communities featuring shovel-ready sites often have a significant competitive advantage in attracting and retaining businesses. Another concern is the long-term water rights for industrial uses at TAC. Regional partners will need to collaborate to ensure TAC has access to sufficient water to meet the needs of existing and future employers. Other long-term regional infrastructure needs include continued development of I-69 and I-49, expansion of broadband, and cooperation among partners regarding infrastructure planning and pursuit of federal sources of funds.

- 3.1.** Ensure long-term industrial water rights for TexAmericas Center, RRAD, and other industrial sites in the region.
 - Collaborate with the Riverbend Water Resources District and other organizations on industrial water supply needs and requirements.
 - Support TAC's efforts to acquire water rights for long-term industrial water use.
- 3.2.** Expand the inventory of shovel-ready sites and shell buildings.
 - Support long-term efforts to develop shovel-ready sites at TAC.
 - Create a regional inventory of industrial sites and buildings.
 - Periodically evaluate gaps in the regional inventory with respect to the needs of target and expanding industries.
 - If necessary, pursue the construction of speculative buildings to meet the needs of target industries.
- 3.3.** Create an I-30 Logistics Corridor Alliance.
 - Work with communities and organizations along I-30 to establish a corridor alliance.

- 3.4.** Ensure the long-term development and expansion of I-69 and I-49.
- Continue regional participation in the Alliance for I-69 Texas.
 - Continue alignment planning for the I-69 West Loop relief route that traverses TexAmericas Center property.
 - Continue support for securing construction funding for the completion of I-49.
 - Continue participation in the I-49 International Coalition.
- 3.5.** Develop redundant broadband infrastructure at TAC to improve high-speed Internet connectivity.
- Conduct a broadband capacity assessment at TAC.
 - Explore potential funding sources for constructing a redundant data ring to TAC.
- 3.6.** Hold a regional summit to identify, discuss, and prioritize the most important infrastructure improvements needed for promoting economic growth.
- In advance of the summit, survey existing businesses for their input on the region's most pressing infrastructure needs.

GOAL 4: ENHANCE “QUALITY OF PLACE” THROUGHOUT THE REGION.

Access to skilled workers remains a chief site location criterion for employers. Businesses, especially those involved in high technology sectors, rely on the skills and talent of their workforce to retain or gain a competitive advantage. Employers know that the best way to tap into talented workers is by locating operations in communities with a strong sense of place. This is because communities offering a multitude of amenities are the ones attracting many of today’s skilled and talented workers. Likewise, a community that is attractive to talent will in turn be more likely to attract companies. Cities and regions must now

compete not only to attract businesses, but also the talent that will support those businesses. Communities must focus on the quality-of-place amenities that matter to workers. A company will be less likely to locate where workers are unwilling to live. While no set definition for “quality of place” exists, the one common factor is the wide availability of choices in housing, entertainment, culture, education, recreation, retail, dining, and healthcare.



The Texarkana area enjoys a number of quality-of-place assets. There is an abundance of outdoor recreation amenities such as hunting, boating, fishing, camping, and golfing. Arts, culture, and entertainment venues include the Museum of Regional History, the Discovery Place Children’s Museum, the Patrick J. Ahern House, the Oaklawn Opry, the Regional Arts Center, and the historic Perot Theater. Texarkana is also a growing regional destination for retail and dining. High quality healthcare is offered by Christus St. Michael Health Systems, Wadley Regional Medical Center, and Collom & Carney Clinic. Postsecondary educational institutions in the area include Texas A&M Texarkana, Texarkana College, and University of Arkansas Community College at Hope, Texarkana.

Even with these numerous assets and amenities, efforts to the enhance quality of place in Texarkana and the surrounding region should be sustained. An ongoing concern for the community is the lack of significant revitalization of downtown Texarkana and the surrounding neighborhoods. Despite years of planning and investments, the downtown continues to suffer decline. The city’s central business district has essentially migrated to I-30. This is a trend that is not likely to be reversed. Some local stakeholders feel this reality should be accepted and reflected in city planning. Rather than push commercial development, efforts to promote downtown vibrancy should focus on arts, culture, and entertainment, in addition to revitalizing nearby neighborhoods.

Beyond downtown, community partners should continue attracting and expanding education, healthcare, and retail amenities. Aggressively marketing assets and amenities to both internal and external audiences will strengthen Texarkana’s position as a regional center.

- 4.1. Update the Texarkana (Texas and Arkansas) Comprehensive Plans to reflect current development patterns.
 - Establish an Arts and Entertainment District in the downtown area.

- Continue pursuing neighborhood stabilization and redevelopment strategic recommendations laid out in the comprehensive plan, including the establishment of a Neighborhood Revitalization District and the adoption of incentives to promote infill residential development.
- 4.2.** Continue enhancing recreational amenities and aesthetics.
- Maintain and enhance community parks and recreational facilities.
 - Advance community beautification efforts.
 - Work with private developers and building owners to promote visually appealing construction and landscaping that is consistent with local design standards.
- 4.3.** Initiate a new regional marketing campaign (internal and external) highlighting Texarkana’s strength as a regional center for education, retail, and dining.
- Promote a positive image of the Texarkana region among residents and build awareness regarding current economic development initiatives.
 - Work with local media, including print, radio, and online outlets, to highlight positive stories about businesses in the community.
- 4.4.** Establish a Digital Ambassadors Program that utilizes a network of “connectors” who share positive stories online of the Texarkana region. Social Toaster (www.socialtoaster.com) provides a platform for structuring and managing such a program. *(See the adjacent text box for a description of a similar initiative in NW Arkansas.)*
- Identify who the connectors and thought leaders in the region are, and encourage them to be digital ambassadors for the region.
 - Develop content that portrays a more positive image of the business climate and highlights opportunities for business and talent to be successful in the region.
 - Create an incentive system that rewards digital ambassadors for actively participating.
 - Promote the program across the Texarkana USA Chamber’s local communications channels, including traditional and social media.

NW ARKANSAS DIGITAL AMBASSADORS INITIATIVE

The Northwest Arkansas Council created the Digital Ambassadors initiative as a way to improve the region’s image and to disseminate information about the region in a cost-effective way. The program currently boasts more than 400 individual Digital Ambassadors. Each Digital Ambassador receives emails with new, exciting content to share on Facebook, Twitter, Instagram, and LinkedIn. The content includes information about regional job growth, quality of life amenities, educational achievements, the local economy, and other ways the metro area stands out. Digital Ambassadors are encouraged to share the content to promote a positive image Northwest Arkansas. The ambassadors earn points based on how often they’re active and how they share their messages, and top participants are eligible to win monthly prizes. The program is a good avenue for enhancing the internal image of Northwest Arkansas. It also helps local residents and businesspeople become more aware of the positive aspects of living and working in Northwest Arkansas.

IMPLEMENTATION MATRIX



The Implementation Matrix provides a suggested timeline for completing each strategy and action and identifies possible organizations involved in their implementation.

STRATEGIES	TIMELINE					POSSIBLE LEAD IMPLEMENTING PARTIES
	On-going	0-12 mos.	12-24 mos.	2-5 yrs.	5-10 yrs.	
GOAL 1. Enhance the regional talent management system.						
STRATEGY 1.1. Retain RRAD workers affected by military downsizing.						
1.1.1. Raise awareness and connect RRAD employees with existing workforce programs and resources.	◆					Workforce Solutions NETX, RRAD
1.1.2. Establish a re-employment initiative.			◆			Workforce Solutions NETX
1.1.3. Coordinate with training providers to identify skills training needed to transition workers to other occupations.		◆				Workforce Solutions NETX, RRAD, Texarkana College
STRATEGY 1.2. Align education and training needs with existing and targeted industries.						
1.2.1. Continue developing customized training programs to support the needs of existing employers.	◆					Workforce Solutions NETX, Texarkana College
1.2.2. Identify potential additional on-site training and education opportunities at the RRAD/TexAmericas Center.		◆				Texarkana College, TAC, RRAD
STRATEGY 1.3. Raise awareness and perception of middle-skills career opportunities.						
1.3.1. Continue promoting the “Make it Work in Texas” campaign.	◆					Workforce Solutions NETX
1.3.2. Build analytics into the campaign so that effectiveness can be measured and strategies/tactics can be modified to improve results.		◆				Workforce Solutions NETX
1.3.3. Consider expanding target audiences.		◆				Workforce Solutions NETX
STRATEGY 1.4. Strengthen business and education partnerships.						
1.4.1. Reenergize the Texarkana Regional P-16 Advisory Council.		◆				Workforce Solutions NETX, Texarkana College, TAMU-T, Chamber
1.4.2. Establish an annual Workforce Development Summit to focus on critical regional workforce issues and solutions.			◆			Workforce Solutions NETX, Texarkana College, TAMU-T, Chamber, TAC
1.4.3. Continue visiting with existing employers to ensure they are made aware of workforce development programs and incentives.	◆					Workforce Solutions NETX, Chamber

STRATEGIES	TIMELINE					POSSIBLE LEAD IMPLEMENTING PARTIES
	On-going	0-12 mos.	12-24 mos.	2-5 yrs.	5-10 yrs.	
1.4.4. Create additional apprenticeship and/or internship programs for young adults focused on advanced technology and middle-skills jobs.				◆		Workforce Solutions NETX, Texarkana College
STRATEGY 1.5. Identify and promote opportunities for emerging leaders and young professionals to engage in civic and economic development affairs.						
1.5.1. Continue supporting the growth of the Greater Texarkana Young Professionals (GTYP) network.	◆					Chamber
1.5.2. Establish a Next Generation Task Force comprised of professionals and volunteers in their 20s and 30s.			◆			Chamber
1.5.3. Encourage emerging leaders to apply for seats on local boards and commissions by hosting workshops.				◆		Chamber
STRATEGY 1.6. Recruit former students at local colleges, universities, and high schools to “come home” by highlighting and promoting regional employment options/opportunities.						
1.6.1. Utilize alumni networks (e.g., Texas A&M-Texarkana Alumni Association) and social media to highlight new business investments and employment opportunities.				◆		Chamber, TAMU-T
1.6.2. Develop marketing materials and a quarterly newsletter to inform former residents of opportunities and current events in the region.				◆		Chamber
GOAL 2. Strengthen the region’s business development capacity.						
STRATEGY 2.1. Establish a comprehensive Business Retention & Expansion program led by the Texarkana USA Chamber of Commerce.						
2.1.1. Focus initially on Texarkana businesses, and then gradually expand efforts regionally.	◆					Chamber
2.1.2. Develop and maintain a database of existing primary employers.		◆				Chamber
2.1.3. Utilize a customer relationship management (CRM) software system to manage contacts and monitor business issues and concerns.		◆				Chamber
2.1.4. Prepare and administer an annual online “Take the Pulse” business survey as a means for keeping in touch with local businesses and documenting specific needs or expansion plans.		◆				Chamber
2.1.5. Formalize an on-site employer visitation program to build relationships with key employers.		◆				Chamber

STRATEGIES	TIMELINE					POSSIBLE LEAD IMPLEMENTING PARTIES
	On-going	0-12 mos.	12-24 mos.	2-5 yrs.	5-10 yrs.	
2.1.6. Develop a questionnaire to best capture critical information from executives and owners during business visitations.		◆				Chamber
2.1.7. For those employers with headquarters located outside of the region, establish relationships by meeting face to face with executives.			◆			Chamber
2.1.8. Continue hosting periodic roundtable discussions, including CEO Breakfast events, giving business leaders the opportunity to personally interact with area economic development partners.	◆					Chamber
2.1.9. Develop a regional “in sourcing” program to match area companies looking for goods and services with other area companies.				◆		Chamber
2.1.10. Periodically review development regulations, ordinances, and approval processes to ensure that municipal and county governments are being responsive to the small business community.				◆		Chamber
2.1.11. Develop an “early warning” and “rapid response” strategy for identifying and responding to potential layoffs or plant closures. Identify “at-risk” companies early on, and develop an aggressive intervention strategy.				◆		Chamber, Workforce Solutions NETX
STRATEGY 2.2. Formalize a regional business attraction program led by TexAmericas Center.						
2.2.1. Support the investment attraction initiatives laid out in the TAC 2014 Strategic Plan.		◆				TAC
STRATEGY 2.3. Develop an international marketing and awareness campaign.						
2.3.1. As part of the BRE survey program (Strategy 2.1), include a section addressing international trade, supplier, and investment linkages.		◆				Chamber
2.3.2. Build on existing international connections of exporters and foreign companies within the regional economy.			◆			TAC
2.3.3. Create an inventory of regional companies with foreign connections.				◆		Chamber, TAC
2.3.4. Continue utilizing the overseas relationships of existing companies operating in the Texarkana region to identify and make contact with potential prospects.	◆					TAC
2.3.5. Strategically attend international industry events, conferences, and trade shows.				◆		TAC
2.3.6. Reactivate Foreign Trade Zone #258 and create a sales and marketing plan to leverage it.				◆		TAC

STRATEGIES	TIMELINE					POSSIBLE LEAD IMPLEMENTING PARTIES
	On-going	0-12 mos.	12-24 mos.	2-5 yrs.	5-10 yrs.	
STRATEGY 2.4. Promote entrepreneurship and small business development.						
2.4.1. Review the 2008 assessment conducted by TIP to evaluate progress made on implementing recommended strategies.		◆				Workforce Solutions NETX, Chamber
2.4.2. Update the implementation guide to reflect strategies that have been implemented as well as those that have not.		◆				Workforce Solutions NETX, Chamber
2.4.3. Continue to promote and leverage existing entrepreneurship and incubator programs in the region.	◆					Workforce Solutions NETX, Chamber
2.4.4. Create opportunities for local entrepreneurs to learn from and support each other, such as mentoring and networking groups.			◆			Chamber
2.4.5. Raise awareness of resources available to entrepreneurs and provide educational opportunities for area small businesses.				◆		Chamber
2.4.6. Develop incentives and facilitate financing for entrepreneurs and startups.				◆		Chamber
STRATEGY 2.5. Build economic development capacity in the rural areas of the region.						
2.5.1. Build a contact database of leadership and strengthen relationships with rural communities.			◆			Chamber
2.5.2. Hold a regular forum for rural leaders in economic development to exchange ideas, discuss best practices, and learn about innovative approaches used in other communities.			◆			Chamber
GOAL 3. Expand critical infrastructure to support new investment and development.						
STRATEGY 3.1. Ensure long-term industrial water rights for TexAmericas Center, RRAD, and other industrial sites in the region.						
3.1.1. Collaborate with the Riverbend Water Resources District and other organizations on industrial water supply needs and requirements.	◆					TAC
3.1.2. Support TAC's efforts to acquire water rights for long-term industrial water use.				◆		TAC
STRATEGY 3.2. Expand the inventory of shovel-ready sites and shell buildings.						
3.2.1. Support long-term efforts to develop shovel-ready sites at TAC.				◆		TAC
3.2.2. Create a regional inventory of industrial sites and buildings.				◆		TAC
3.2.3. Periodically evaluate gaps in the regional inventory with respect to the needs of target and expanding industries.				◆		TAC

STRATEGIES	TIMELINE					POSSIBLE LEAD IMPLEMENTING PARTIES
	On-going	0-12 mos.	12-24 mos.	2-5 yrs.	5-10 yrs.	
3.2.4. If necessary, pursue the construction of speculative buildings to meet the needs of target industries.				◆		TAC
STRATEGY 3.3. Create an I-30 Logistics Corridor Alliance.						
3.3.1. Work with communities and organizations along I-30 to establish a corridor alliance.			◆			Cities of Texarkana, Chamber
STRATEGY 3.4. Ensure the long-term development and expansion of I-69 and I-49.						
3.4.1. Continue regional participation in the Alliance for I-69 Texas.	◆					Cities of Texarkana, Chamber
3.4.2. Continue alignment planning for the I-69 West Loop relief route that traverses TexAmericas Center property.	◆					City of Texarkana, TAC
3.4.3. Continue support for securing construction funding for the completion of I-49.	◆					Cities of Texarkana, Chamber
3.4.4. Continue participation in the I-49 International Coalition.	◆					Cities of Texarkana, Chamber
STRATEGY 3.5. Develop redundant broadband infrastructure at TAC to improve high-speed Internet connectivity.						
3.5.1. Conduct a broadband capacity assessment at TAC.			◆			TAC
3.5.2. Explore potential funding sources for constructing a redundant data ring to TAC.				◆		TAC
STRATEGY 3.6. Hold a regional summit to identify, discuss, and prioritize the most important infrastructure improvements needed for promoting economic growth.						
3.6.1. In advance of the summit, survey existing businesses for their input on the region’s most pressing infrastructure needs.				◆		Chamber
GOAL 4. Enhance “quality of place” throughout the region.						
STRATEGY 4.1. Update the Texarkana (Texas and Arkansas) Comprehensive Plans to reflect current development patterns.						
4.1.1. Establish an Arts and Entertainment District in the downtown area.				◆		Cities of Texarkana
4.1.2. Continue pursuing neighborhood stabilization and redevelopment strategic recommendations laid out in the comprehensive plan.	◆					Cities of Texarkana
STRATEGY 4.2. Continue enhancing recreational amenities and aesthetics.						
4.2.1. Maintain and enhance community parks and recreational facilities.					◆	Cities of Texarkana
4.2.2. Advance community beautification efforts.					◆	Cities of Texarkana

STRATEGIES	TIMELINE					POSSIBLE LEAD IMPLEMENTING PARTIES
	On-going	0-12 mos.	12-24 mos.	2-5 yrs.	5-10 yrs.	
4.2.3. Work with private developers and building owners to promote visually appealing construction and landscaping that is consistent with local design standards.					◆	Cities of Texarkana
STRATEGY 4.3. Initiate a new regional marketing campaign (internal and external) highlighting Texarkana’s strength as a regional center for education, retail, and dining.						
4.3.1. Promote a positive image of the Texarkana region among residents and build awareness regarding current economic development initiatives.			◆			Chamber
4.3.2. Work with local media, including print, radio, and online outlets, to highlight positive stories about businesses in the community.	◆					Chamber
STRATEGY 4.4. Establish a Digital Ambassadors Program that utilizes a network of “connectors” who share positive stories online of the Texarkana region.						
4.4.1. Identify who the connectors and thought leaders in the region are, and encourage them to be digital ambassadors for the region.				◆		Chamber
4.4.2. Develop content that portrays a more positive image of the business climate and highlights opportunities for business and talent to be successful in the region.				◆		Chamber
4.4.3. Create an incentive system that rewards digital ambassadors for actively participating.				◆		Chamber
4.4.4. Promote the program across the Texarkana USA Chamber’s local communications channels, including traditional and social media.				◆		Chamber

PERFORMANCE MEASURES



An important piece of any strategic plan is developing the metrics by which the success of the plan’s implementation will be measured and tracked. The types of performance measures normally established and used by organizations include:

- **Input measures**, which identify the amount of resources needed to provide a particular product or service, including labor, materials, equipment, and supplies;
- **Output measures**, which represent the quantity of products made or services provided, and focus on the level of activity involved in providing a service or making a product (workload measures are one of the most common type of output measures);
- **Efficiency measures**, also known as productivity measures, which reflect the cost of providing products or services, either in terms of dollars or time;
- **Quality measures**, which reflect the effectiveness in meeting expectations of customers and stakeholders while providing a service or product, and can include reliability, accuracy, courtesy, competence, responsiveness, and completeness associated with the product or service provided; and
- **Outcome measures**, which reflect the actual results achieved with a service or a product.

While it is difficult to directly connect the success of any economic development plan to local-level macro-economic statistics (e.g., median household income), tracking some economic indicators provides a general understanding of the relative economic vitality of the Texarkana region. TIP recommends the use of the following indicators to measure program effectiveness and economic growth in the region:

Goal/Strategy	Metric	Data Source
Talent	Number of affected RRAD workers reemployed in the region	Workforce Solutions NETX
	Number of people enrolled in middle-skills technical training programs	Regional community colleges and other skills-training providers
	Population over age 25 with a bachelor’s degree or higher	U.S. Census–American Community Survey (3-year estimates)
	Employer perception of ease of recruitment	Employer survey
	Employer perception of quality of the workforce	Employer survey
Business Development	Number of jobs created/retained	Texas Workforce Commission; business interviews, surveys, and media reports
	Median wage of jobs created/retained	Workforce Solutions NETX; business interviews, surveys, and media reports
	Growth of private capital investment	Business interviews, surveys, and media reports
	Growth of commercial tax base	County tax assessors
	Number of companies assisted	Chamber records
	Increased median household income	U.S. Census–American Community Survey (3-year estimates)
	Number of new businesses formed	Business interviews, surveys, media reports

Goal/Strategy	Metric	Data Source
Infrastructure	Number of shovel-ready sites at TAC	TAC
	Office square footage added to the local market (by geographic area)	Regional commercial office brokerage (e.g., CB Richard Ellis)
	Industrial square footage added to the local market (by geographic area)	Regional commercial office brokerage (e.g., CB Richard Ellis)
Quality of Place	Percent of the population age 20-34	U.S. Census–American Community Survey (3-year estimates)
	Retail sales growth	Texas Comptroller of Public Accounts
	Annual population estimates	Texas State Data Center

APPENDICES

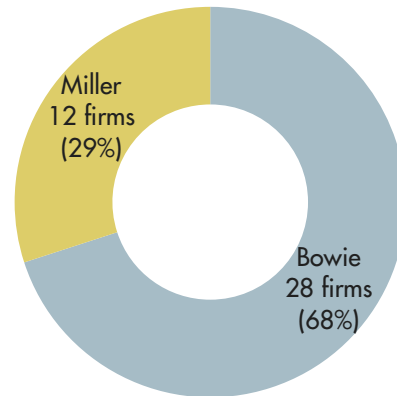


APPENDIX A: EMPLOYER SURVEY

To better understand local workforce-related opportunities and challenges, an online survey was conducted as part of the strategic planning process. The survey offered employers the opportunity to share their experience with hiring, retaining, and training workers in the region. The survey was distributed by the Texarkana USA Chamber of Commerce in June 2014. A total of 41 firms responded, representing nearly 4,700 workers.

1. Please provide the ZIP Code and county of your primary location in the region.

Survey respondents were limited to the Texarkana metropolitan area, which is comprised of Bowie County, Texas, and Miller County, Arkansas. One respondent (a utility) reported their primary location as a five-county region which included Bowie and Miller, along with Titus County in Texas and Hempstead and Howard Counties in Arkansas. Likewise, with few exceptions, respondents were primarily based in three ZIP Codes surrounding Texarkana: **75503** and **75501** in Texas, and **71854** in Arkansas. The two companies located outside those ZIP Codes were in **77569** (Nash) and **77570** (New Boston), both of which are located in Bowie County.



Note: Excludes one respondent that reported their primary location as a five-county region: Bowie (TX), Miller (TX), Titus, (TX), Hempstead (AR), and Howard (AR).

2. Which category best describes your industry?

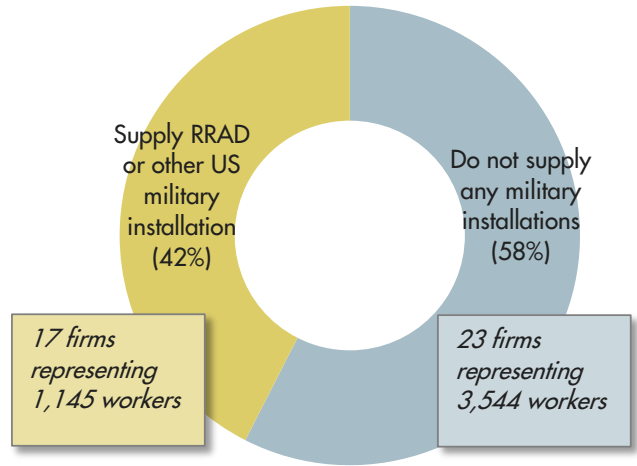
Respondents largely described themselves as being in professional industries, such as finance/insurance, wholesale trade, professional services, and real estate. These four industries made up more than one-half of respondents. One-fifth of respondents described their organizations as being more industrial, and related to the construction, utilities, and manufacturing industries.

In terms of the number of employees represented, manufacturing was the largest industry. The two manufacturers who participated counted for a combined workforce of more than 1,800 (including full-time, part-time, and contract workers). Healthcare, finance/insurance, and utilities respondents had the next largest workforce among participating firms.

Industry	# of Firms	# of Workers Represented
Finance/Insurance	7	587
Wholesale Trade	6	246
Professional Services	5	395
Real Estate	4	66
Construction	3	46
Health Care	2	885
IT (Hardware & Software)	2	22
Manufacturing	2	1,842
Utilities	2	450
Automobile Repair	1	3
Cultural/Recreation	1	63
Education	1	12
Hospitality	1	40
Non-profit	1	1
Retail	1	<i>not provided</i>
Support Services	1	9
Arts, Ent., & Recreation	1	25
TOTAL	41	4,692

3. Which of the following statements apply to your firm? Please check all that apply.

The majority of respondents (58 percent) do not provide goods or services to military installations. Among those that do supply the military, seven firms with a combined workforce of more than 500 supplied RRAD directly. Of the seven, three firms also provided goods and services to another RRAD supplier or contractor. A total of 12 firms (including the three mentioned previously) supplied RRAD indirectly. Of these, one-half also served as indirect suppliers to other US military installations. Only one firm (a utility employing 400 workers) indicated they were a direct supplier to other US military installations. This firm was also the only one that selected all four statements.



Note: One firm (6 employees) did not respond to this question

Distribution of responses for 17 firms that supply RRAD or another US military installation

	# of Firms	# of Workers Represented
We are a direct supplier/contractor to the Red River Army Depot (RRAD)	7	521
We supply goods/services to a RRAD supplier/contractor	12	1,024
We are a direct supplier/contractor to other US military installations	1	400
We supply goods/services to a supplier/contractor that services other US military installations	6	802

Note: The number of firms and workers represented exceeds figures shown above as respondents were allowed to check more than one answer.

Distribution of responses for 17 firms that supply RRAD or another US military installation by firm/industry

	Construction	Construction	Finance/Insurance	Hospitality	IT (Hardware/Software)	IT (Hardware/Software)	Professional Services	Professional Services	Professional Services	Real Estate	Support Services	Utilities	Utilities	Wholesale Trade	Wholesale Trade	Wholesale Trade	Wholesale Trade	Wholesale Trade
Direct supplier to RRAD					✓					✓	✓	✓			✓	✓	✓	
Indirect supplier to RRAD	✓	✓		✓	✓	✓	✓	✓				✓		✓	✓			✓
Direct supplier to other US installation(s)												✓						
Indirect supplier to other US installation(s)				✓		✓	✓		✓			✓	✓					
Total # workers represented	35	5	6	40	15	7	300	8	5	34	9	400	50	168	38	17	8	3

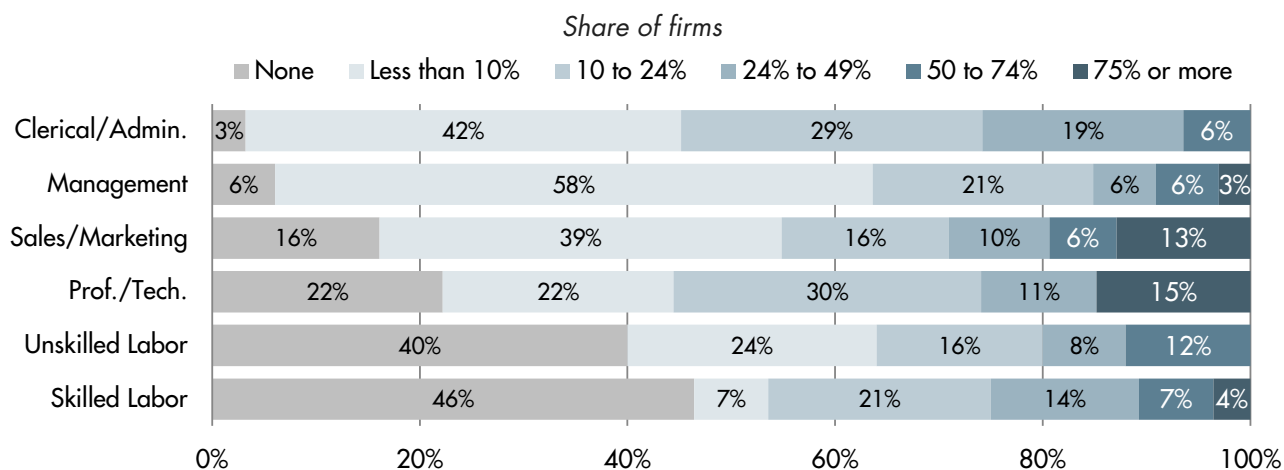
4. Approx. how many people are currently employed by your organization/business in the region?

More than 4,600 workers were represented by the 41 responding firms. The vast majority (89 percent) of were full-time employees. The largest firm that responded (in terms of employment) had nearly 1,800 workers (combined total of full-time, part-time, and contract/temporary workers). Average firm size was 114 workers.

	Employment Status of Worker			All Respondents
	Full-time	Part-time	Contract/Temp.	
Total # reported (all respondents)	4,197	288	207	4,692
Max. # reported by single firm	1,750	132	60	1,795
Average	110	12	21	114

5. Approximately what percentage of your workforce is employed in the following categories?

Management and clerical staff were the most common occupational groups employed by the 36 firms who completed the question. As would be expected, managers accounted for a relatively small share of employment (less than 10 percent) for most respondents. For a few firms, this occupational category comprised more than 50 percent of the workforce. However, these tended to be very small firms with only a handful of workers. Skilled labor—a category including skilled production and trades workers, such as machinists, welders, and electricians—was the least common, reported by roughly one-half of responding firms. Respondents were also less likely to employ unskilled workers, reflecting the predominance of professional services firms among the participants



6. Please indicate average hourly wages paid to the following classifications of workers.

Twenty-seven respondents provided at least some information regarding the hourly wage rates paid to their workers according to broad occupation and experience categories. Most responses fell between \$10.00 and \$19.99 per hour (or between \$20,000 and \$40,000 when translated to an annual basis). Only a handful of responding firms have hourly wage rates above \$40.00 per hour (\$80,000 on an annual basis). These rates were generally paid to more experienced professionals (managers, professional and technical workers, and sales personnel). Sales positions were the only entry-level occupation for which the maximum wage rate of \$50.00 or more was indicated. (See figure, next page)

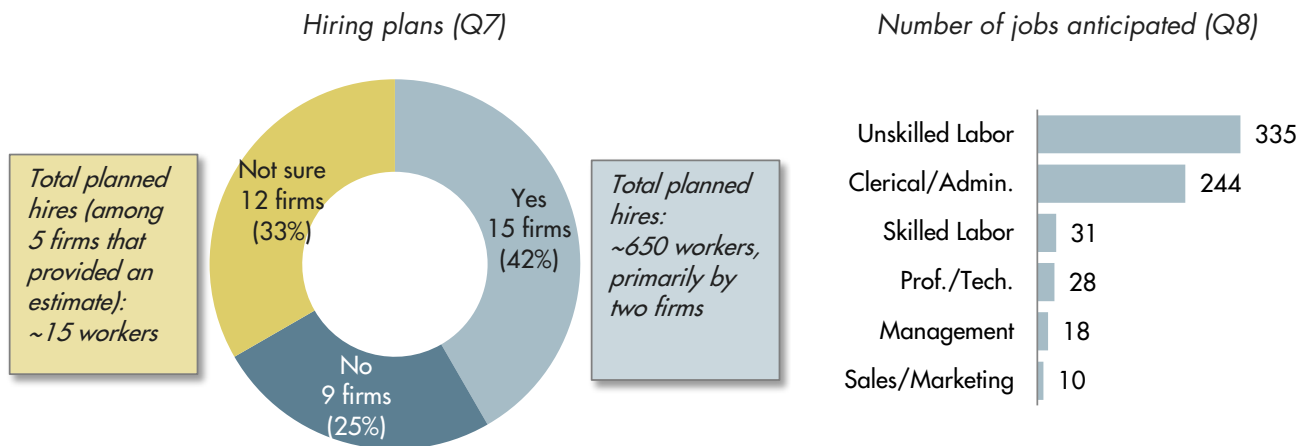
Number of firms specifying indicated hourly wage rate for each position (Q6)

	Minimum wage (\$7.25)	\$7.26 - \$9.99	\$10.00 - \$14.99	\$15.00 - \$19.99	\$20.00 - \$24.99	\$25.00 - \$29.99	\$30.00 - \$39.99	\$40.00 - \$49.99	\$50.00 or more	Total # Firms
ENTRY LEVEL										
Management		1	1	5	3	1	2			13
Prof./Technical			3	5	2	1	1			12
Sales/Marketing		2	5	3	1				1	12
Skilled Labor		5		1	2					8
Unskilled Labor	1	5	3	1						10
Clerical/Admin.	1	4	13	1						19
EXPERIENCED										
Management				5	1	3	7	4	2	22
Prof./Technical			1	2	2	6	1	2	1	15
Sales/Marketing			2	4	2	3	2		2	15
Skilled Labor			2	4	1	2	1			10
Unskilled Labor	1	1	7	1	1		1			12
Clerical/Admin.			6	9	4	1				20

7. Do you plan to hire additional employees within the region in the next 12 to 24 months?

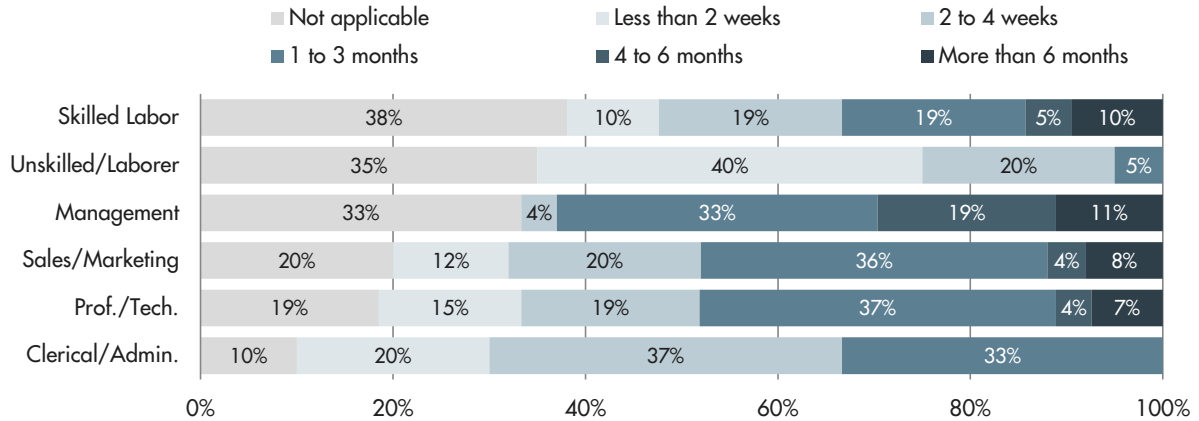
8. If you plan to hire additional employees in the region in the next 12 to 24 months, approximately how many workers do you plan to add in each of the following categories?

Hiring plans were mixed, with two-fifths of respondents (42 percent) planning to hire additional employees within the region in the next 12 to 24 months. The remainder were either not sure (33 percent) or not planning to make any hires (25 percent). Of the more than 650 new hires planned, just over one-half are expected to be unskilled workers or laborers. Clerical and administrative workers are expected to be the next largest group of hires, accounting for roughly one-third of the jobs respondents anticipate adding.



9. Approximately how long does it typically take to fill a vacancy for each of the following classifications of workers?

Firms reported difficulty filling vacancies for more skilled personnel, with the least amount of time required to fill unskilled/laborer positions. Roughly one in 10 respondents indicated that management and skilled labor positions require more than six months to fill. Professional/technical and sales/marketing occupations faced similar recruitment challenges, with each position taking one month or more to fill for roughly one-half of responding firms.



10. When hiring, please indicate which of the following geographic areas is typically used to recruit workers for each of the broad categories shown below. Please check all that apply

Respondents primarily sourced staff from within the two-county Texarkana metropolitan area. Most of the 36 firms that responded to this question also looked outside the immediate area when hiring, regardless of position. Respondents were most likely to cast a wider geographic net when hiring for management and professional positions, although only a handful of firms looked to the Dallas/Fort Worth and Little Rock metropolitan areas. Although respondents were not queried directly on this point, clerical and administrative support positions received the largest number of responses, suggesting this was an occupational category that was a common recruitment target.

Number of firms

	Management	Professional/ Technical	Sales/ Marketing	Skilled Labor	Unskilled/ Laborer	Clerical/ Admin.	Other
Within Texarkana metro area	16	19	19	18	18	31	6
Outside Texarkana metro area	12	11	8	6	3	6	1
DFW metro area		2					
Little Rock metro area	1	2		1			
Other large metro area	2	2	2				
Not applicable	9	4	6	6	6	1	8

11. Which occupations or skills are difficult to recruit in your industry?

12. What types of occupations or skills do you anticipate needing in the future?

Sales/marketing positions and construction/skilled trades workers are examples of skills that are currently considered difficult to recruit and are also expected to be in demand in the future. Engineers and technician-level positions were also commonly cited as both a current and future need. Although based on a relatively small number of responses, the findings align with national shortages and skills needs and can provide a basis for discussion.

Difficult to recruit (Q11)

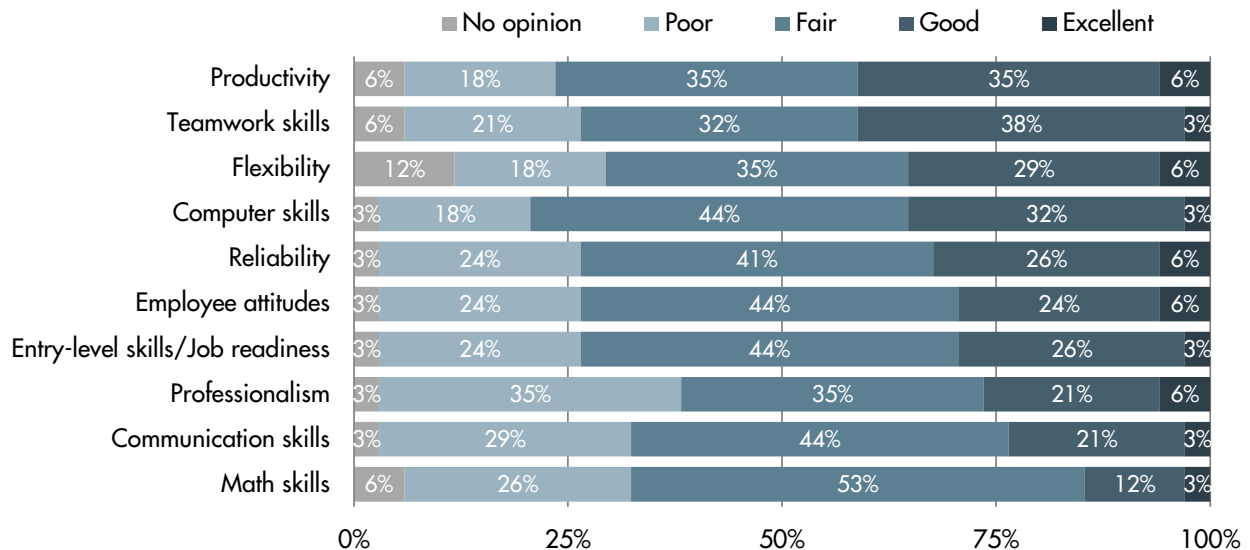
Skill/occupation	# of responses	# of firms
Sales/marketing	8	8
Construction/skilled trades	6	5
Fitness/recreation	5	1
Engineering/technical	5	4
Finance/accounting	4	4
Repair & maintenance	3	3
Healthcare (practitioner/technical)	3	1
Management	2	2
Business support	1	1
Production	1	1
IT/computers	1	1
Legal	1	1
Driver	1	1

Future occupation/skills needed (Q12)

Skill/occupation	# of responses	# of firms
Construction/skilled trades	8	5
Engineering/technical	5	3
Sales/marketing	5	5
Fitness/recreation	3	1
Repair & maintenance	3	2
Healthcare (practitioner/technical)	3	1
Finance/accounting	3	3
IT/computers	3	3
Management	2	2
Legal	1	1
Business support	1	1
Production	1	1

13. How would you rate the regional workforce overall on the following characteristics?

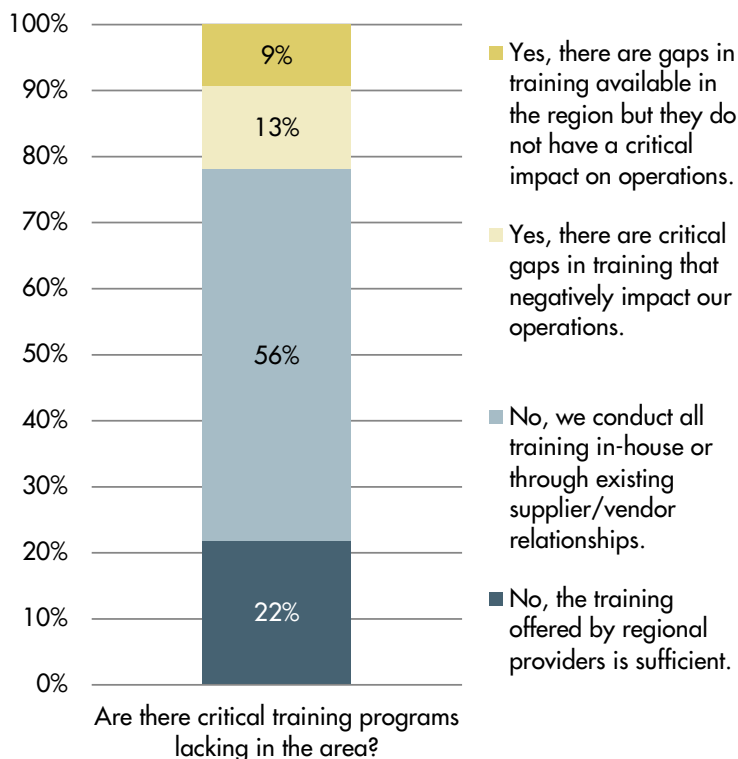
Overall, attitudes toward the region’s workforce were positive, as about one-half of respondents provided either a fair, good, or excellent rating across all categories. Areas that received more strongly positive ratings (a least one third of respondents answering good or excellent) were productivity, teamwork skills, flexibility, and computer skills. Categories in which the workforce was viewed less positively included entry-level skills, attitudes, communication skills, and math skills. One-third of respondents found workforce professionalism to be poor.



14. Are there training programs lacking in the area that are critical to your training needs?

Of the 32 firms that weighed in on the region’s training programs, only 7 respondents (22 percent) viewed the training offered by regional providers as “sufficient.” An equal number of firms perceived gaps in the regional training offerings, but were evenly divided in their views of the impact of these gaps. Three firms indicated training gaps did not have a critical impact, while 4 firms viewed them as having a negative effect on operations.

An additional 18 firms (56 percent) did not identify any critical training gaps in the region because they conduct all training in-house or through vendors and suppliers. There is no way to know from this question, however, whether these in-house training and vendor relationships were established to address a perceived gap at some point in the past.



Those firms reporting gaps were asked to expand on their answer. One respondent pointed out the considerable length of time required to train employees to become HVAC-certified and the need for better alignment between employer needs and provider offerings in that field. Another respondent indicated that several colleges offered refrigeration classes, but lacked training in electrical and refrigeration troubleshooting techniques. A final comment noted that skilled trades training was needed in all areas and that a source for engineers and IT workers should be identified.

15. Please use the space below to provide any additional thoughts on your experience with hiring, retaining, and training workers in the Texarkana region.

When asked to provide additional thoughts about their experiences with the regional workforce, two central themes emerged: attitude and education. Specific comments pointed to a lack of interviewing and job hunting skills, as well as the need for additional skills training. Other areas addressed include the need to “tout” all the good things about Texarkana “far and wide,” the desire for a recruitment program aimed at specific occupations (engineers, IT, and skilled trades), and the need to offer internships that would “reach out to new graduates and get them into the door.” One respondent highlighted the presence of three higher education institutions in Texarkana offering “quick courses, semester courses, votech training, and other classes that enable the workforce of Texarkana and the surrounding area to take advantage of increasing their ‘workability.’”

APPENDIX B: INDUSTRY TARGETING

Although a broad range of factors affect location decisions for individual companies, labor availability has become an essential concern of virtually every site selection process. As a result, matching potential industry targets with the region's occupational structure and understanding the availability of relevant training programs was the focus of this analysis. This section looks at potential industry targets from a workforce perspective using the data on RRAD workforce capabilities, findings from the economic assessment, and the results of the SWOT analysis, together with our understanding of economic and demographic trends.

While workforce was the focus of our quantitative analysis, our team also brings to bear an understanding of the impact of broader macroeconomic and social trends—such as consumer spending patterns, emerging markets and international trade, and demographic shifts/aging workforce—to better understand long-term recruitment and development prospects. TIP also strongly considers how potential targets fit within opportunities and challenges identified during the planning process.

ALIGNMENT

Industry staffing patterns were used to understand how the region's workforce aligns with potential recruitment targets. The analysis of staffing patterns for the affected occupations (see Volume 2, section 4) points to an alignment with **transportation equipment, metalworking, machinery manufacturing, and wholesale distribution**. Regional strengths and national trends also point to opportunities in **energy**, both in manufacturing and services, and **food processing** and related industries.

The initial step in the targeting analysis was to compile staffing patterns data for these industry sectors. These data are extrapolated from the National Employment Matrix prepared by the U.S. Bureau of Labor Statistics every other year as part of its ongoing Employment Projections program. The most recent matrix shows US employment levels for 2010 and projected employment for 2020 for approximately 300 detailed industries and 750 occupations. The matrix can be used to conduct analyses by occupation (identifying all industries in which plumbers are employed, for example) or by industry (identifying the detailed occupations employed in the construction industry).

Data from the matrix was used to identify the individual occupations that comprise the largest share of employment for each sector and to see which of these positions, if any, cut across sectors. Figure 4 (page 45) shows the results of this analysis. For each sector, the top 10 occupations are indicated; occupations accounting for more than 5 percent of total employment in the sector are shaded. Results of the staffing patterns analysis were also used to illustrate the broad composition of the workforce for each sector by major occupational group (Figure 5, page 46).

Several of these top 10 occupations were common across multiple sectors. Team Assemblers (SOC 51-2092) and Inspectors, Testers, Sorters, Samplers, and Weighers (SOC 51-9061) were common to four of the six sectors. Team Assemblers (an occupation that is commonly cross-trained to perform multiple tasks in the assembly process and rotate through them as needed), comprise greater than 5 percent of total employment for three sectors—transportation equipment, fabricated metal, and machinery. This occupation was also among the lowest paying of the group.

FIGURE 4: TEN LARGEST OCCUPATIONS ASSOCIATED WITH TARGET SECTORS

13 OCCUPATIONS (SHADED) ARE AMONG TOP 10 OCCUPATIONS IN TWO OR MORE TARGET SECTORS

SOC Code	Description	Median Hourly Wage	≥5% of employment in sector						
			Energy	Food	Logistics	Transp. Equip.	Fabricated Metal	Machinery	
51-2092	Team Assemblers	\$11.28		■		■	■	■	
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	\$13.83		■		■	■	■	
51-4121	Welders, Cutters, Solderers, and Brazers	\$15.50				■	■	■	
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	\$9.90		■	■	■			
51-1011	First-Line Supervisors of Production and Operating Workers	\$23.46				■	■	■	
51-9198	Helpers—Production Workers	\$11.13		■		■	■		
11-1021	General and Operations Managers	\$34.12	■		■		■		
53-3032	Heavy and Tractor-Trailer Truck Drivers	\$15.14	■		■				
51-4041	Machinists	\$18.14					■	■	
43-9061	Office Clerks, General	\$10.52	■		■				
41-4012	Sales Reps., Whsl. and Mfg., Except Tech./Scientific Products	\$21.01				■		■	
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	\$20.44					■	■	
51-2041	Structural Metal Fabricators and Fitters	\$18.35				■	■		
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	\$10.14		■					
51-4031	Cutting, Punching, and Press Machine Workers, Metal/Plastic	\$11.70					■		
47-2111	Electricians	\$18.63	■						
53-7051	Industrial Truck and Tractor Operators	\$12.95			■				
51-2099	Assemblers and Fabricators, All Other	\$16.34				■			
43-6014	Secretaries/Admin. Assts., Except Legal, Medical, and Exec.	\$12.29			■				
53-7064	Packers and Packagers, Hand	\$9.35		■					
17-2141	Mechanical Engineers	\$32.68						■	
47-2061	Construction Laborers	\$11.01	■						
53-3033	Light Truck or Delivery Services Drivers	\$11.29			■				
11-9013	Farmers, Ranchers, and Other Agricultural Managers	\$10.51		■					
51-9122	Painters, Transportation Equipment	\$15.92				■			
51-3023	Slaughterers and Meat Packers	\$9.57		■					
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	\$8.63		■					
51-4111	Tool and Die Makers	\$18.29						■	
51-9111	Packaging and Filling Machine Operators and Tenders	\$11.20		■					
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	\$17.45			■				
47-1011	First-Line Sprvsrs., Construction Trades and Extraction Workers	\$20.57	■						
49-9051	Electrical Power-Line Installers and Repairers	\$25.49	■						
47-2073	Operating Engineers and Other Construction Equip. Operators	\$14.70	■						
47-2152	Plumbers, Pipefitters, and Steamfitters	\$17.75	■						
49-9021	HVAC and Refrigeration Mechanics and Installers	\$15.26	■						
51-2031	Engine and Other Machine Assemblers	\$15.58						■	
43-5032	Dispatchers, Except Police, Fire, and Ambulance	\$14.81			■				
49-3043	Rail Car Repairers	\$17.68			■				

Source: EMSI Complete Employment 2014.2

In addition to Team Assemblers and Inspectors, Testers, Sorters, Samplers, and Weighers, the remaining key occupations that support two or more sectors are listed below:

- Welders, Cutters, Solderers, and Brazers
- Laborers and Freight, Stock, and Material Movers, Hand
- First-Line Supervisors of Production and Operating Workers
- Helpers–Production Workers
- General and Operations Managers
- Heavy and Tractor-Trailer Truck Drivers
- Machinists
- Office Clerks, General
- Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products
- Computer-Controlled Machine Tool Operators, Metal and Plastic
- Structural Metal Fabricators and Fitters

Of the crosscutting occupations, General and Operations Managers (SOC 11-1021) had the highest median hourly wage rates in the 12-county region at \$34.12. Another five occupations had wage rates above the regional median (\$15.62). Wage rates for occupations with median hourly wage rates above this amount are bolded in Figure 4. Understanding which occupations are important to multiple industries can help inform training investments and talent recruitment efforts.

FIGURE 5: DISTRIBUTION OF EMPLOYMENT WITHIN TARGET SECTORS
 SHARE OF EMPLOYMENT IN TARGET SECTOR BY MAJOR OCCUPATIONAL GROUP

SOC Code	Description	Energy	Food	Logistics	Transportation Equip.	Fabricated Metal	Machinery
51-0000	Production	12.0%	52.4%	2.2%	68.4%	61.2%	53.0%
53-0000	Transportation and Material Moving	8.9%	14.8%	65.4%	5.5%	5.0%	3.3%
43-0000	Office and Administrative Support	11.7%	5.4%	13.5%	7.3%	10.5%	10.2%
49-0000	Installation, Maintenance, and Repair	16.2%	5.9%	10.0%	4.4%	3.6%	4.6%
47-0000	Construction and Extraction	30.3%	0.3%	1.0%	2.2%	3.0%	1.3%
11-0000	Management	6.1%	6.8%	3.1%	4.0%	5.9%	6.8%
17-0000	Architecture and Engineering	4.6%	1.0%	0.2%	2.7%	3.7%	9.7%
41-0000	Sales and Related	4.0%	2.3%	1.6%	2.5%	2.6%	3.8%
13-0000	Business and Financial Operations	3.3%	1.1%	1.5%	2.1%	2.9%	4.2%
45-0000	Farming, Fishing, and Forestry	0.0%	6.9%	0.1%	0.0%	0.0%	0.0%
	Remaining Occupational Groups	2.9%	3.1%	1.5%	1.0%	1.6%	3.2%
		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: EMSI Complete Employment 2014.2, TIP Strategies

CAPACITY

Although it is often overlooked, an important aspect of an industry targeting program is understanding whether or not the region has the capacity to support the expansion of the target sector. For this work, we took a broad look at this question from a talent perspective. However, labor is just one piece of the capacity question. Other equally important factors that affect site location decisions, including transportation, available sites, incentives, and quality of life factors should be addressed on a case-by-case basis.

For each target sector, we conducted an analysis of the ability to meet the staffing needs of a hypothetical new investment in the region (based on national staffing patterns) that would create 250 new jobs. With few exceptions, these capacity scenarios suggest the region has an ample supply of the leading occupations required to support the recommended targets. In addition, the region's wage rates compare favorably to national levels for most occupations. However, this broad-brush technique does not take into account specific skills or certifications that may be required by employers when actually hiring. It is also important to remember that the comparisons are made to the number of workers currently employed in the occupation. If those workers were hired by new employers, some or all of those positions would need to be replaced.

Based on this analysis, occupations that may warrant attention include those for which expansion of the target sector could create a demand equal to 25 percent of more of the existing workforce in the occupation:

- Agribusiness and food processing: Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (SOC 51-9012) and Demonstrators and Product Promoters (SOC 41-9011).
- Logistics and distribution: Transportation, Storage, and Distribution Managers (SOC 11-3071); Weighers, Measurers, Checkers, and Samplers, Recordkeeping (SOC 43-5111); Rail Car Repairers (SOC 49-3043); Railroad Brake, Signal, and Switch Operators (SOC 53-4021); and Tank Car, Truck, and Ship Loaders (SOC 53-7121).
- Energy (manufacturing & services): Service Unit Operators, Oil, Gas, and Mining (SOC 47-5013); Roustabouts, Oil and Gas (SOC 47-5071); Rotary Drill Operators, Oil and Gas (SOC 47-5012); Derrick Operators, Oil and Gas (SOC 47-5011); Wellhead Pumpers (SOC 53-7073) Chemical Equipment Operators and Tenders (SOC 51-9011); Chemical Plant and System Operators (SOC 51-8091); Chemical Engineers (SOC 17-2041); and Chemical Technicians (SOC 19-4031).
- Fabricated metal: Boilermakers (SOC 47-2011).

For each sector, we also looked at available information on the supply of relevant education and training. We began by compiling data on for-credit completions in fields relevant to the sector's key occupations from the US Department of Education's Integrated Postsecondary Education Data System (IPEDS) for 48 colleges and universities within a 125-mile radius of Texarkana. A summary of for-credit completions by field of study and award level is provided as part of each profile. Additional information about this analysis, including an overview of the IPEDS system and the results of completions data for the region generally, is provided in Volume 2, Appendix D.

While the analysis provides a starting point for discussion, it has several technical limitations that prohibit its use as a strict measure of the “supply” of labor. The most notable of these is the fact that IPEDS data include only awards conferred for credit, that is, as part of a formal program of study leading to a degree. Noncredit coursework—which includes customized workforce training, professional development, and continuing education—is not covered. This limitation is less problematic for positions that typically require an associate’s degree or above, but it can be challenging when trying to understand the pool of available labor for positions requiring less formal, shorter-term awards. Many of the key occupations in the target sector fit this description.

The crosswalk used to match occupations with coursework, developed by the National Center for Education Statistics, presents other limitations. The most fundamental of these is that a standardized crosswalk cannot capture the actual relationship between coursework undertaken and job chosen. In other words, many people obtain their degree in one field and end up pursuing employment in another. In addition, relationships identified in the crosswalk are inconsistent at best. Some occupations are matched to many broad fields of study, while others are linked with a few highly specific areas.

Finally, in thinking about training “gaps,” it is important to remember that workforce training and education are not closed systems. Students may attend college outside the region and return for employment; others may attend college locally and take a job elsewhere. Postsecondary education systems are also not closed in terms of time. While data collection efforts are designed to measure completion within a set period of time (two years, four years, six years), the path to graduation often does not fit these norms. This is particularly true of community colleges which are sometimes used by students to sample courses and “try out” career choices prior to making a larger investment. Completions data also do not fully reflect the contribution of community colleges as students frequently transfer coursework without completing a credential. It is not uncommon for students working in a field of study to forgo the associates credential on the way to a bachelor’s degree, for example.

Unlike for-credit work, noncredit programs (those taken outside a standard academic track) have few reporting requirements. To help further illustrate the local training environment, we compiled published listings of noncredit offerings from the following institutions:

- Northeast Texas Community College (NTCC)
- Texarkana College (Texarkana)
- Univ. of Ark. Community College-Hope (UACCH)
- Cossatot Comm. College of the Univ. of Arkansas (Cossatot)
- Kiamichi Technology Center-Idabel (Kiamichi)

FIGURE 6: NONCREDIT PROGRAMS
SAMPLE OF PROGRAMS AT REGIONAL INSTITUTIONS

	NTCC	Texarkana	UACCH	Cossatot	Kiamichi
SCHEDULED COURSES					
Allied Health/Nursing	■	■	□	■	■
Computer Use	■	■	■	■	■
Industrial Tech./Skilled Trades	■	□	□	□	□
Vehicle Operator	□	■	□	■	■
Business/Entrepreneurship	□	□	□	■	■
Leadership Skills	■	□	□	□	□
Workplace/Employment Skills	■	□	□	■	■
OTHER RESOURCES					
Customized Industry Training	✓	✓	✓	✓	✓
Online Training Available	✓	✓	✓	✓	✓
Apprenticeship			✓	✓	

Source: TIP Strategies research. Reflects published programs only
 Apprenticeships: UACCH offers Certified Nursing Assistance Youth Apprenticeship (pilot program); Cossatot is sponsor of Southwest Arkansas Electrical Apprenticeship Program

Results of this research are shown in Figure 6 (page 48). It is not intended to convey the full range of programs, but rather to convey a sense of the types of formally established noncredit programs found among local institutions. Healthcare is one of the few areas that has established noncredit program offerings at each of the five campuses. All of the campuses offer customized training and online courses in a broad range of subjects.

DASHBOARD

FIGURE 7: EMPLOYMENT OVERVIEW OF TARGET SECTORS

SELECTED DATA POINTS FOR THE 12-COUNTY REGION, TEXAS, AND THE US

	Agribusiness & Food Processing	Logistics & Distribution	Energy (services & manufacturing)	Machinery	Transportation Equipment	Fabricated Metal
12-county region						
Jobs, 2013	13,091	5,012	4,621	2,268	1,544	1,454
Chg. % from 2003	▼24.1%	▲10.2%	▲12.2%	▼18.8%	▲14.8%	▼29.3%
LQ (US = 1.00)	3.93	1.25	0.74	2.31	1.15	1.18
Earnings per worker (EPW)	\$34,056	\$49,508	\$65,874	\$47,462	\$53,413	\$47,231
Establishments	161	282	391	14	23	64
Texas						
Jobs, 2013	213,995	436,461	1,024,488	106,459	91,669	133,250
% Chg. From 2003	▼9.5%	▲22.4%	▲39.8%	▲34.5%	▲7.8%	▲28.5%
LQ (US = 1.00)	0.69	1.17	1.75	1.16	0.74	1.16
Earnings per worker (EPW)	\$43,512	\$67,739	\$109,914	\$95,354	\$91,171	\$66,702
Establishments	12,776	17,491	45,060	2,196	926	4626
US						
Jobs, 2013	3,760,692	4,507,035	7,090,140	1,108,661	1,511,125	1,388,316
% Chg. From 2003	▼1.9%	▲5.7%	▲9.1%	▼4.3%	▼14.4%	▼5.0%
LQ (US = 1.00)	1.00	1.00	1.00	1.00	1.00	1.00
Earnings per worker (EPW)	\$45,555	\$60,854	\$92,820	\$78,714	\$86,007	\$62,165
Establishments	142,907	222,377	489,212	29,109	14,268	57448

Source: EMSI Complete Employment 2014.2

Note: Employment figures shown above represent the sum of industries within the sector as defined at the 6-digit NAICS level. Industry-level figures shown in the target sector profiles were compiled at the 4-digit level, which is more commonly used for industry targeting purposes. This approach has the potential to introduce industries that weren't part of the original sector definition. As a result, the sum of industries shown within the individual profiles may exceed the total shown above for the sector in some cases. **Orange-shaded** figures show sectors with above-average location quotients (LQs). Location quotients indicate strengths and weaknesses in the employment base relative to the US overall. Theoretically, higher LQs imply specialization in a local economy and are often viewed by economists as export industries.

TECHNICAL NOTE: Cluster definitions used in the target industry analysis are derived from cluster mapping work led by the Purdue Center for Regional Development and the Indiana Business Research Center, with funding from the US Economic Development Administration. These definitions are not mutually exclusive in terms of the industries included, although there is little overlap within the 12-county region. Figure 8 below shows the affected industries and employment levels for the 12-county region, the state, and the nation. Additional information regarding the cluster mapping can be found at <http://www.statsamerica.org/innovation/data.html>.

FIGURE 8: OVERLAPPING INDUSTRIES WITHIN SECTOR DEFINITIONS

DEFINITIONS INCLUDE SOME INDUSTRIES THAT ARE NOT MUTUALLY EXCLUSIVE (WITH 2013 EMPLOYMENT)

NAICS Code	Description	2013 EMPLOYMENT			TARGET SECTOR					
		12-county region	Texas	US	Agribusiness & Food Processing	Logistics & Distribution	Energy (services & manufacturing)	Machinery	Transportation Equipment	Fabricated Metal
332410	Power Boiler and Heat Exchanger Manufacturing	—	3,496	25,192			■			■
332420	Metal Tank (Heavy Gauge) Manufacturing	<10	5,890	34,940			■			■
333111	Farm Machinery and Equipment Manufacturing	615	2,884	66,184	■			■		
333112	Lawn and Garden Tractor and Home Lawn and Garden Equipment Mfg.	1,275	326	17,148	■			■		
333131	Mining Machinery and Equipment Manufacturing	—	1,297	13,374			■	■		
333132	Oil and Gas Field Machinery and Equipment Manufacturing	132	54,403	80,586			■	■		
333294	Food Product Machinery Manufacturing	—	447	17,877	■			■		
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing	—	517	16,117			■	■		
333611	Turbine and Turbine Generator Set Units Manufacturing	—	1,225	27,119			■	■		
486110	Pipeline Transportation of Crude Oil	—	5,080	9,874		■	■			
486210	Pipeline Transportation of Natural Gas	25	10,024	26,964		■	■			
486910	Pipeline Transportation of Refined Petroleum Products	<10	670	6,390		■	■			
486990	All Other Pipeline Transportation	—	81	307		■	■			

Source (employment figures): EMSI Complete Employment 2014.2

AGRIBUSINESS AND FOOD PROCESSING

The Agribusiness and Food Processing cluster encompasses both traditional food processing, as well as related industries including crop and animal support activities, merchant wholesaling, and food product machinery manufacturing. Within the 12-county region, these activities encompass the highest number jobs among all the target sectors, employing roughly 13,000 workers. Employment levels are the highest in the outlying counties of Titus (Texas) and Howard (Arkansas).

In terms of industries, animal processing (driven primarily by poultry operations) is the largest employer with nearly 8,500 jobs in 2013. Although the sector has experienced job losses over the past decade, some individual industries have seen modest gains at the national level, most notably Animal Food Manufacturing (NAICS 3111) which experienced a gain of just over 7 percent between 2003 and 2013.

FIGURE 9: AGRIBUSINESS AND FOOD PROCESSING
 DISTRIBUTION OF JOBS IN 12-COUNTY REGION, 2013
 Lowest number of jobs (light) to highest (dark)

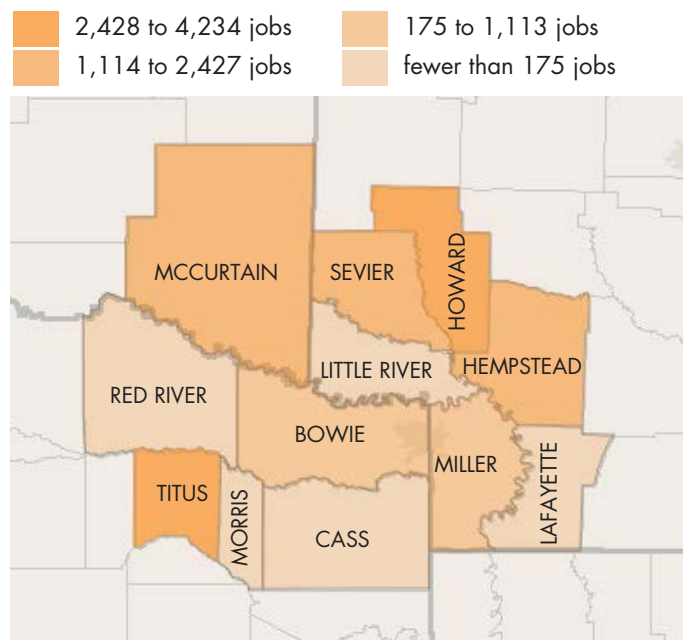


FIGURE 10: REGIONAL EMPLOYMENT OVERVIEW: AGRIBUSINESS AND FOOD PROCESSING
 SNAPSHOT OF SELECTED INDUSTRIES WITHIN SECTOR

NAICS Code	Description	2013	LQ	% Chg., 2003-2013		Est.	EPW
		Jobs	(US = 1.00)	Region	US		
3116	Animal Slaughtering and Processing	8,455	19.71	-24.5% ▼	-3.6% ▼	12	\$31,261
3331	Ag., Construction, and Mining Machinery Mfg.	2,022	9.13	-22.4% ▼	-2.1% ▼	<10	\$46,761
1120	Animal Production	1,016	2.69	-30.9% ▼	-8.1% ▼	71	\$28,116
3118	Bakeries and Tortilla Manufacturing	707	2.67	-3.7% ▼	+0.5% ▲	<10	\$44,361
4238	Machinery, Equip., and Supplies Merchant Wholesalers	526	0.89	-9.9% ▼	+0.3% ▲	56	\$53,032
4249	Misc. Nondurable Goods Merchant Wholesalers	354	1.17	-13.0% ▼	+0.5% ▲	22	\$46,896
1151	Support Activities for Crop Production	334	0.84	+2.8% ▲	+1.0% ▲	10	\$19,527
1110	Crop Production	185	0.26	-19.6% ▼	-6.8% ▼	28	\$23,909
3111	Animal Food Manufacturing	172	3.64	0.0% ▼	+7.3% ▲	<10	\$43,991
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	47	1.44	-9.6% ▼	+0.1% ▲	<10	\$83,453
3119	Other Food Manufacturing	29	0.18	+7.4% ▲	+1.8% ▲	<10	\$64,727

Source (all figures): EMSI Complete Employment 2014.2 Note: Earnings per worker (EPW) represents total annual earnings (wages, salaries, profits, benefits, and other compensation) divided by the number of jobs in the industry. It is not equivalent to wages paid to individual workers. EPW above the regional average for all industries (\$41,461) is **highlighted**. See Figure 7 (page 46) for a note regarding employment figures. Orange-shaded figures show sectors with above-average location quotients (LQs).

AGRIBUSINESS AND FOOD PROCESSING (CONT.)

OUTLOOK & DRIVING TRENDS

The outlook for food and beverage processing is generally positive. Factors driving demand include shifts in consumer preferences, both in the US and abroad, as well as increasing globalization. While the American marketplace remains their bread and butter, US processors are increasingly relying on emerging markets to sustain growth in revenue and resulting in increased exports.

Structural changes in the industry are underway including a shift toward healthier foods grown locally and organically. Other trends affecting the industry include the growth of the highly segmented specialty food market and the increased consumption of prepackaged foods, as time constraints on American households continue to rise.

Agricultural processing is typically a low-margin business. As a result, rising prices for livestock or crops can quickly impact manufacturers who process and package foods for retail consumers. Because of the constant churn of evolving American preferences, US food processors must remain nimble and opportunistic. This, in turn, allows them to be highly competitive players in the global marketplace. Livestock processors often prefer to locate production away from major population centers, though still within easy one-day trucking. The region already benefits from this site location trend.

REGIONAL EMPLOYERS

- Tyson Foods, Inc.
- Pilgrim’s Pride
- Southern Bakeries
- Great American Foods Corporation
- Newly Weds Foods
- River Valley Animal Foods (part of Tyson Foods, Inc.)

SITE CONSIDERATIONS

- ✓ Access to major population centers
- ✓ Proximity to input commodities
- ✓ Highway infrastructure
- ✓ Water & wastewater capacity
- ✓ Competitive labor costs
- ✓ Land availability

NETWORKING & RESEARCH

<i>Trade association</i>	<i>Website</i>
American Frozen Food Institute	www.affi.org
American Meat Institute	www.meatami.com
Grocery Manufacturers Association	www.gmaonline.org
Institute of Food Technologies	www.ift.org
National Association for Specialty Food Trade	www.specialtyfood.com
US Poultry & Egg Association	www.uspoultry.org
Snack Food Association	www.sfa.org
International Dairy Foods Association	www.idfa.org

Source: TIP Strategies research

AGRIBUSINESS AND FOOD PROCESSING (CONT.)

Key occupations in the sector include Meat, Poultry, and Fish Cutters and Trimmers (SOC 51-3022), which represents 16 percent of total employment in the sector. The largest occupation found in the sector is Heavy and Tractor Trailer Truck Drivers (SOC 53-3032), which employs more than 3,400 workers in the 12-county region. Two of the occupations that would potentially be affected by layoffs at RRAD—Welders, Cutters, Solderers, and Brazers (SOC 51-4121) and Industrial Truck and Tractor Operators (SOC 53-7051), shaded below—are among the key occupations for this sector

The vast majority of workers in this sector do not have any college experience. Sales and management positions (including farm and ranch managers) were among the occupations with the highest percentage of workers likely to hold a bachelor’s degree or higher. Not surprisingly, farm managers are also most likely to be self-employed with nearly three-quarters estimated to fall into this category. They also had the highest share of workers aged 55 years and over among the key occupations.

FIGURE 11: KEY OCCUPATIONS: AGRIBUSINESS AND FOOD PROCESSING
 (SELECTED CHARACTERISTICS OF LEADING OCCUPATIONS BASED ON SHARE OF TOTAL EMPLOYMENT)

SOC Code	Description	% of Total Emp. in Sector	Emp 2013	LQ	% 55+ Years	Educational attainment For workers 25+ years old				
						0%	25%	50%	75%	100%
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	16%	2,129	14.75	14%	78%			18%	
11-9013	Farmers, Ranchers, and Other Agricultural Mgrs.	5%	653	1.47	49%	50%		28%	21%	
51-9198	Helpers—Production Workers	5%	1,384	3.64	12%	76%			21%	
53-7062	Laborers/Freight & Material Movers, Hand	5%	2,606	1.30	15%	68%			26%	
51-3023	Slaughterers and Meat Packers	4%	552	7.87	13%	78%			18%	
45-2092	Farmworkers/Laborers	4%	541	0.83	19%	83%			13%	
53-7064	Packers and Packagers, Hand	4%	911	1.49	16%	79%			16%	
51-9111	Packaging and Filling Machine Workers	3%	616	1.85	15%	78%			18%	
51-9061	Inspectors, Testers, Sorters, Samplers, & Weighers	3%	901	2.14	23%	49%		35%	16%	
51-2092	Team Assemblers	3%	1,150	1.24	15%	68%			27%	
51-1011	1st-Line Sprvrs., Production/Operating Workers	3%	1,008	1.93	20%	49%		34%	16%	
51-3099	Food Processing Workers, All Other	2%	343	9.83	14%	75%			21%	
49-9071	Maintenance and Repair Workers, General	2%	1,715	1.40	26%	58%		36%		
51-4121	Welders, Cutters, Solderers, and Brazers	2%	1,377	4.24	14%	72%			26%	
51-3092	Food Batchmakers	2%	255	2.82	11%	66%			28%	
49-9041	Industrial Machinery Mechanics	2%	811	2.83	23%	54%		41%		
53-7051	Industrial Truck and Tractor Operators	1%	795	1.75	16%	76%			22%	
51-3021	Butchers and Meat Cutters	1%	308	2.50	17%	78%			18%	
51-9199	Production Workers, All Other	1%	420	1.97	14%	69%			26%	
53-7063	Machine Feeders and Offbearers	1%	399	4.17	16%	74%			23%	
53-3032	Heavy and Tractor-Trailer Truck Drivers	1%	3,435	2.15	29%	68%			27%	
41-4012	Sales Reps., Whlsl & Mfg., Except Tech./Scientific	1%	1,059	0.79	24%	21%	32%		47%	
45-2041	Graders and Sorters, Agricultural Products	1%	175	3.20	23%	84%			11%	
53-7061	Cleaners of Vehicles and Equipment	1%	377	1.25	12%	76%			20%	
37-2011	Janitors/Cleaners, Except Maids & Housekeepers	1%	1,824	0.82	27%	72%			23%	

Source: EMSI Complete Employment 2014.2, U.S. Bureau of Labor Statistics Note: Includes all occupations comprising at least 1 percent of employment in the sector. Occupations likely to be affected by layoffs at RRAD are highlighted in gold. Occupations with LQs above 1.25 are noted in orange; those with greater than 25 percent of the workforce aged 55 years and over are in blue.

FIGURE 12: STAFFING SCENARIOS: AGRIBUSINESS AND FOOD PROCESSING

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Agribusiness and food processing
 Facility type **Beverage Manufacturing**
 NAICS 3121
 Jobs 250

SUPPLY INDICATOR

■■■■ Greater than 75% of current employment
 ■■■■ Greater than 50% of current employment
 ■■■■ Greater than 25% of current employment
 ■■■■ Greater than 10% of current employment
 ■■■■ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
51-9111	Packaging and Filling Machine Workers	10.8%	27	616	■■■■■	\$11.20	\$22.64	0.49
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	5.8%	15	57	■■■■■	\$16.28	\$26.15	0.62
53-7062	Laborers/Freight, Stock, and Material Movers, Hand	5.7%	14	2,606	■■■■■	\$9.90	\$45.36	0.22
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	5.4%	13	1,059	■■■■■	\$21.01	\$25.75	0.82
53-3031	Driver/Sales Workers	4.6%	11	363	■■■■■	\$10.50	\$20.64	0.51
41-2031	Retail Salespersons	3.8%	10	3,726	■■■■■	\$9.60	\$22.39	0.43
53-7051	Industrial Truck and Tractor Operators	3.4%	8	795	■■■■■	\$12.95	\$16.94	0.76
53-3032	Heavy and Tractor-Trailer Truck Drivers	3.3%	8	3,435	■■■■■	\$15.14	\$18.05	0.84
41-9011	Demonstrators and Product Promoters	3.0%	8	25	■■■■■	\$11.15	\$38.63	0.29
49-9041	Industrial Machinery Mechanics	2.9%	7	811	■■■■■	\$21.31	\$16.28	1.31
51-1011	First-Line Sprvrs., Production/Operating Workers	2.8%	7	1,008	■■■■■	\$23.46	\$12.43	1.89
45-2092	Farmworkers/Laborers (Crop, Nursery, Greenhouse)	2.5%	6	541	■■■■■	\$8.63	\$34.50	0.25
43-5081	Stock Clerks and Order Fillers	2.4%	6	1,476	■■■■■	\$9.76	\$45.68	0.21
53-3033	Light Truck or Delivery Services Drivers	2.4%	6	622	■■■■■	\$11.29	\$42.55	0.27
11-1021	General and Operations Managers	1.8%	5	1,537	■■■■■	\$34.12	\$18.55	1.84
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1.8%	4	901	■■■■■	\$13.83	\$37.92	0.36
35-3031	Waiters and Waitresses	1.7%	4	1,603	■■■■■	\$8.41	\$11.57	0.73
49-9071	Maintenance and Repair Workers, General	1.7%	4	1,715	■■■■■	\$14.08	\$29.73	0.47
51-9198	Helpers-Production Workers	1.6%	4	1,384	■■■■■	\$11.13	\$16.74	0.66
51-2092	Team Assemblers	1.4%	4	1,150	■■■■■	\$11.28	\$22.98	0.49
43-9061	Office Clerks, General	1.2%	3	2,594	■■■■■	\$10.52	\$28.88	0.36
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	1.1%	3	41	■■■■■	\$12.04	\$13.96	0.86
51-9023	Mixing and Blending Machine Workers	1.1%	3	188	■■■■■	\$21.01	\$59.92	0.35
43-3031	Bookkeeping, Accounting, and Auditing Clerks	1.1%	3	1,370	■■■■■	\$13.05	\$25.85	0.50
11-3051	Industrial Production Managers	0.9%	2	191	■■■■■	\$38.23	\$13.24	2.89

Source: EMSI Complete Employment 2014.2, TIP Strategies

STAFFING SCENARIOS: AGRIBUSINESS AND FOOD PROCESSING (CONTINUED)

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Agribusiness and food processing
 Facility type **Dog and Cat Food Manufacturing**
 NAICS 311111
 Jobs 250

SUPPLY INDICATOR

■ ■ ■ ■ Greater than 75% of current employment
 ■ ■ ■ □ Greater than 50% of current employment
 ■ ■ □ □ Greater than 25% of current employment
 ■ □ □ □ Greater than 10% of current employment
 □ □ □ □ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
51-9111	Packaging and Filling Machine Workers	10.8%	27	616	□□□□	\$11.20	\$22.64	0.49
51-9023	Mixing and Blending Machine Workers	9.6%	24	188	■□□□	\$21.01	\$26.15	0.80
53-3032	Heavy and Tractor-Trailer Truck Drivers	6.4%	16	3,435	□□□□	\$15.14	\$45.36	0.33
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	5.7%	14	2,606	□□□□	\$9.90	\$25.75	0.38
53-7051	Industrial Truck and Tractor Operators	4.5%	11	795	□□□□	\$12.95	\$20.64	0.63
51-1011	1st-Line Sprvrs., Production/Operating Workers	4.0%	10	1,008	□□□□	\$23.46	\$22.39	1.05
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	3.3%	8	1,059	□□□□	\$21.01	\$16.94	1.24
49-9071	Maintenance and Repair Workers, General	3.2%	8	1,715	□□□□	\$14.08	\$18.05	0.78
11-1021	General and Operations Managers	2.7%	7	1,537	□□□□	\$34.12	\$38.63	0.88
53-7064	Packers and Packagers, Hand	2.5%	6	911	□□□□	\$9.35	\$16.28	0.57
51-3092	Food Batchmakers	2.5%	6	255	□□□□	\$11.50	\$12.43	0.93
51-9198	Helpers-Production Workers	2.4%	6	1,384	□□□□	\$11.13	\$34.50	0.32
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	2.1%	5	181	□□□□	\$17.05	\$45.68	0.37
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	2.1%	5	79	□□□□	\$14.38	\$42.55	0.34
43-9061	Office Clerks, General	1.9%	5	2,594	□□□□	\$10.52	\$18.55	0.57
43-3031	Bookkeeping, Accounting, and Auditing Clerks	1.8%	4	1,370	□□□□	\$13.05	\$37.92	0.34
49-9041	Industrial Machinery Mechanics	1.5%	4	811	□□□□	\$21.31	\$11.57	1.84
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1.3%	3	901	□□□□	\$13.83	\$29.73	0.47
43-5071	Shipping, Receiving, and Traffic Clerks	1.3%	3	626	□□□□	\$14.23	\$16.74	0.85
11-3051	Industrial Production Managers	1.2%	3	191	□□□□	\$38.23	\$22.98	1.66
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1.1%	3	2,113	□□□□	\$12.29	\$28.88	0.43
43-4051	Customer Service Representatives	1.1%	3	1,019	□□□□	\$11.07	\$13.96	0.79
53-3033	Light Truck or Delivery Services Drivers	1.0%	3	622	□□□□	\$11.29	\$59.92	0.19
19-1012	Food Scientists and Technologists	0.9%	2	16	■□□□	\$22.72	\$25.85	0.88
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	0.9%	2	141	□□□□	\$10.42	\$13.24	0.79

Source: EMSI Complete Employment 2014.2, TIP Strategies

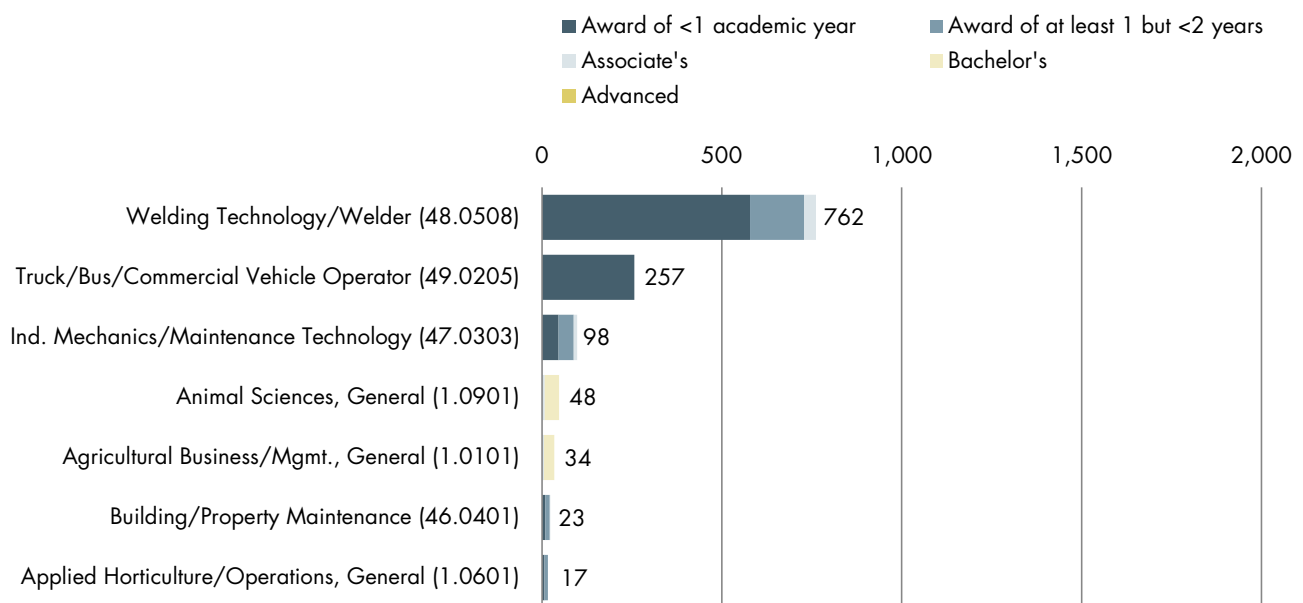
AGRIBUSINESS AND FOOD PROCESSING (CONT.)

A look at for-credit completions shows relatively few degrees or awards conferred in fields of study relevant to the Agribusiness and Food Processing sector’s key occupations (those shown in Figure 11, page 53) among the schools analyzed. This is to be expected, as many of the occupations do not require college coursework and those that do may not require the work to be completed for credit (i.e., as part of an academic course of study). Of the for-credit completions that were reported, the largest numbers were in Welding Technology/Welder (CIP 48.0508). On average, 762 awards were made in this field of study, the vast majority of which were awards of less than one academic year. Northwest Louisiana Technical College was the largest source of completions in this field of study, with an average of 354 awards conferred during the three years analyzed. Truck driving was the next largest field of study that supports key occupations in the sector, with an average of 257 degrees awarded annually, all less than one year’s duration (CIP 49.0205). The only awards conferred at the bachelor’s degree level or above were in Animal Sciences, General (CIP 1.0901) and Agricultural Business and Management, General (CIP 1.0101).

Although its impact is not yet reflected in the completions data shown below, Northeast Texas Community College is an important asset in support of this sector locally. The development of a Texas Higher Education Coordinating Board-approved, sustainable agriculture curriculum; creation of the Research and Demonstration Farm; and construction and dedication of the Elizabeth Hoggatt Whatley Agriculture Complex—a LEED-Platinum-certified building—point to the institution’s commitment to the health of the region’s agricultural base.

FIGURE 13: COMPLETIONS IN RELATED FIELDS OF STUDY: AGRIBUSINESS AND FOOD PROCESSING
 THREE-YEAR AVERAGE OF CERTIFICATES AND DEGREES CONFERRED FOR CREDIT, 2010-2012

By award level and Classification of Instructional Programs (CIP) code



Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) surveys.

Note: Data shown was compiled for 48 colleges and universities within 125 miles of Texarkana. For additional details on the analysis, including a complete list of schools, see the Volume 2, Appendix D. IPEDS data include only schools eligible to participate in federal financial aid programs. Figures shown include first and second majors. Cosmetology schools were excluded from this analysis.

LOGISTICS AND DISTRIBUTION

Roughly 5,000 workers were employed in Logistics and Distribution activities in the 12-county region in 2013, with the highest levels of employment in Bowie County (TX) and Miller County (AR). General Freight Trucking (NAICS 4841) accounted for nearly 40 percent of the sector’s roughly 280 establishments and slightly more than one-half (51 percent) of total employment.

The highest concentration of workers relative to the US is in Support Activities for Rail Transportation (NAICS 4881), as evidenced by the industry LQ of 7.05. This industry experienced declines over the last decade at the regional level, but saw gains nationally during the same period. Earnings per worker—a measure that encompasses total compensation (including wages, salary, and benefits), as well as proprietors’ income and profits—was highest for Pipeline Transportation of Natural Gas (NAICS 4862) and Rail Transportation (NAICS 4821).

FIGURE 14: LOGISTICS & DISTRIBUTION

DISTRIBUTION OF JOBS IN 12-COUNTY REGION, 2013

Lowest number of jobs (light) to highest (dark)

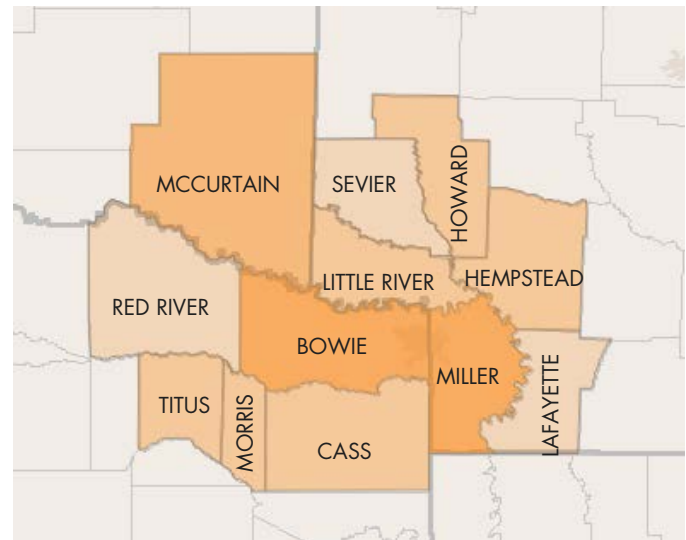


FIGURE 15: REGIONAL EMPLOYMENT OVERVIEW: LOGISTICS & DISTRIBUTION

SNAPSHOT OF SELECTED INDUSTRIES WITHIN SECTOR

NAICS Code	Description	2013 Jobs	LQ (US = 1.00)	% Chg., 2003-2013		Est.	EPW
				Region	US		
4841	General Freight Trucking	2,574	2.57	9.6% ▲	0.3% ▲	111	\$44,511
4842	Specialized Freight Trucking	702	1.78	43.3% ▲	7.2% ▲	84	\$47,924
4881	Support Activities for Air Transportation	479	3.16	96.3% ▲	23.6% ▲	<10	\$54,062
4931	Warehousing and Storage	307	0.49	42.1% ▲	34.1% ▲	14	\$53,622
4821	Rail Transportation	287	1.35	2.5% ▲	7.3% ▲	<10	\$85,169
5416	Mgmt., Scientific, and Technical Consulting Services	214	0.17	63.4% ▲	54.2% ▲	38	\$43,493
4921	Couriers and Express Delivery Services	207	0.47	46.8% ▲	-6.5% ▼	<10	\$49,841
4882	Support Activities for Rail Transportation	179	7.05	-64.7% ▼	37.7% ▲	<10	\$56,098
4884	Support Activities for Road Transportation	57	0.65	26.7% ▲	22.6% ▲	<10	\$34,596
4922	Local Messengers and Local Delivery	50	0.87	163.2% ▲	2.2% ▲	14	\$33,974
4885	Freight Transportation Arrangement	46	0.25	-2.1% ▼	12.5% ▲	<10	\$45,619
4862	Pipeline Transportation of Natural Gas	25	1.05	-62.7% ▼	-3.2% ▼	<10	\$107,340

Source (all figures): EMSI Complete Employment 2014.2 Note: Earnings per worker (EPW) represents total annual earnings (wages, salaries, profits, benefits, and other compensation) divided by the number of jobs in the industry. It is not equivalent to wages paid to individual workers. EPW above the regional average for all industries (\$41,461) is **highlighted**. See Figure 7 (page 46) for a note regarding employment figures.

LOGISTICS AND DISTRIBUTION (CONT.)

OUTLOOK & DRIVING TRENDS

Employment in distribution-related activities is expected to rise by nearly 700,000 jobs over the coming decade. To put this number in perspective, that's about 188 new jobs each day, every day in the US for the next 10 years.

Proximity to customers (rather than suppliers) is a major issue for the distribution sector. Dallas/Fort Worth is one of a handful of "super hubs" in the US (along with Los Angeles, Chicago, Atlanta, and New Jersey). The interstates leading into these "hub-and-spoke" distribution centers are ground zero for wholesalers, freight haulers, and logistics operators. I-30 in Northeast Texas is ideally located for these activities as this artery connects Dallas/Fort Worth's ground-freight super hub to Memphis, one of the world's largest airfreight hubs.

Large wholesalers and, increasingly, big-box retailers often manage their logistics and distribution activities in-house. For everyone else, however, third-party logistics providers (3PLs) are increasingly likely to provide distribution services. This includes activities like assembling and repackaging goods, consolidating orders and shipments, physically delivering goods to customers, processing returned items, and handling e-commerce fulfillment operations. 3PLs typically serve a large base of regional customers from a single, modern facility, using state-of-the-art information technology to manage inventory control and costs. Interstate highway access—in, near, or between major metropolitan areas—is usually a major location issue.

NETWORKING & RESEARCH

<i>Trade association</i>	<i>Website</i>
American Trucking Associations	www.truckline.com
International Foodservice Distributors Association	www.ifdaonline.org
National Poultry & Food Distributors Association	www.npfda.org
Industrial Truck Association	www.indtrk.org
Intermodal Association of North America	www.intermodal.org
International Association of Refrigerated Warehouses	www.gcca.org/partners/iarw
International Warehouse Logistics Association	www.iwla.com

Source: TIP Strategies research

REGIONAL EMPLOYERS

- Defense Logistics Agency Distribution Operations Center (RRAD)
- Texas & Northern Railway Co.
- Southern Refrigerated Transport
- Southwest Arkansas Transit
- TSD Logistics
- Grocery Supply Co.
- Ruan Transportation Management Systems
- Daryl Thomason Trucking
- Priefert Logistics

SITE CONSIDERATIONS

- ✓ Proximity to markets
- ✓ Interstate highway access
- ✓ Quality of transport infrastructure
- ✓ Land availability (large sites, level terrain)
- ✓ Availability of semi-skilled labor
- ✓ Affordable labor rates
- ✓ Competitive tax environment
- ✓ Rail accessibility

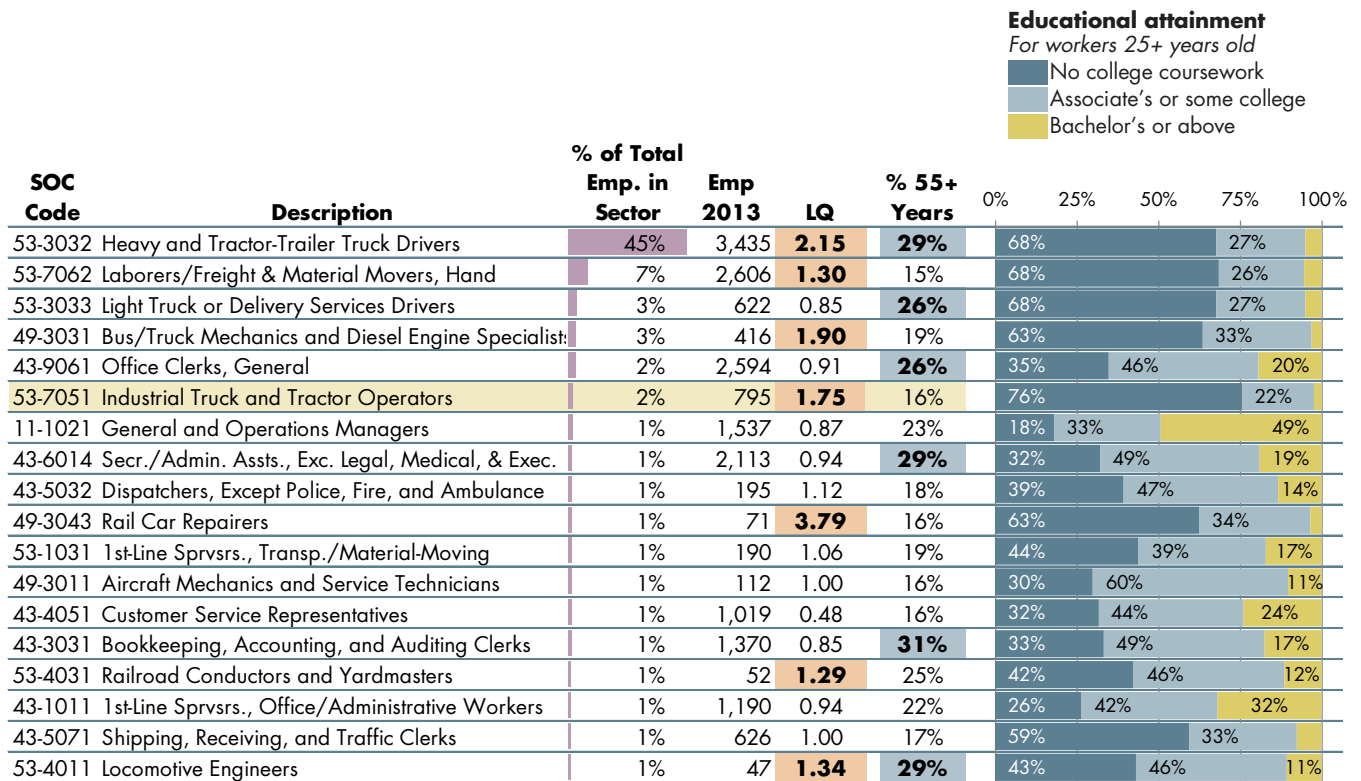
LOGISTICS AND DISTRIBUTION (CONT.)

As might be expected, trucking and freight handling occupations comprise a large share of employment in the Logistics and Distribution sector. The largest occupation typically employed in the sector is Heavy and Tractor Trailer Truck Drivers (SOC 53-3032), which employs more than 3,400 workers in the 12-county region and represents just under one-half (45 percent) of total employment in the sector. Laborers and Freight, Stock, and Material Movers, Hand (SOC 53-7062) is the next largest share in percentage terms, accounting for 7 percent of jobs in the sector. Industrial Truck and Tractor Operators (SOC 53-7051), an occupation which includes forklift drivers and operators of other cargo-handling vehicles, is one of the key occupations for this sector and also among the positions likely to be affected by workload at RRAD.

Several key positions within the sector are facing an aging workforce, most notably Truck Drivers (SOC 53-3032), an occupation in which roughly one in three workers (29 percent) is estimated to be 55 years or older. On the administrative side, Secretaries and Administrative Assistants, Except Legal, Medical, and Executive (SOC 43-6041) and Bookkeeping, Accounting, and Auditing Clerks (SOC 43-3031) have similar shares of older workers. While trucking jobs require little formal preparation, several occupations within the sector are likely to require at least some college experience, suggesting the need to begin preparing a pipeline of replacement workers for key positions.

FIGURE 16: KEY OCCUPATIONS: LOGISTICS & DISTRIBUTION

SELECTED CHARACTERISTICS OF LEADING OCCUPATIONS (BASED ON SHARE OF TOTAL EMPLOYMENT)



Source: EMSI Complete Employment 2014.2, U.S. Bureau of Labor Statistics Note: Includes all occupations comprising at least 1 percent of employment in the sector. Occupations likely to be affected by layoffs at RRAD are highlighted in gold. Occupations with LQs above 1.25 are noted in orange; those with greater than 25 percent of the workforce aged 55 years and over are in blue.

FIGURE 17: STAFFING SCENARIOS: LOGISTICS & DISTRIBUTION

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Logistics and distribution
 Facility type **General Warehousing and Storage**
 NAICS 493110
 Jobs 250

SUPPLY INDICATOR

■ ■ ■ ■ Greater than 75% of current employment
■ ■ ■ □ Greater than 50% of current employment
■ ■ □ □ Greater than 25% of current employment
■ □ □ □ Greater than 10% of current employment
□ □ □ □ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	15.1%	38	2,606	□ □ □ □	\$9.90	\$22.64	0.44
53-7051	Industrial Truck and Tractor Operators	7.3%	18	795	□ □ □ □	\$12.95	\$26.15	0.50
43-5081	Stock Clerks and Order Fillers	9.7%	24	1,476	□ □ □ □	\$9.76	\$45.36	0.22
53-7064	Packers and Packagers, Hand	14.8%	37	911	□ □ □ □	\$9.35	\$25.75	0.36
53-3032	Heavy and Tractor-Trailer Truck Drivers	15.1%	38	3,435	□ □ □ □	\$15.14	\$20.64	0.73
43-5071	Shipping, Receiving, and Traffic Clerks	8.1%	20	626	□ □ □ □	\$14.23	\$22.39	0.64
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	14.7%	37	154	■ □ □ □	\$20.66	\$16.94	1.22
53-7063	Machine Feeders and Offbearers	15.1%	38	399	□ □ □ □	\$11.03	\$18.05	0.61
53-3033	Light Truck or Delivery Services Drivers	14.7%	37	622	□ □ □ □	\$11.29	\$38.63	0.29
43-4051	Customer Service Representatives	14.6%	37	1,019	□ □ □ □	\$11.07	\$16.28	0.68
49-9071	Maintenance and Repair Workers, General	15.1%	38	1,715	□ □ □ □	\$14.08	\$12.43	1.13
43-9061	Office Clerks, General	12.6%	31	2,594	□ □ □ □	\$10.52	\$34.50	0.30
43-1011	First-Line Supervisors of Office and Administrative Support Workers	14.1%	35	1,190	□ □ □ □	\$18.77	\$45.68	0.41
11-1021	General and Operations Managers	14.8%	37	1,537	□ □ □ □	\$34.12	\$42.55	0.80
11-3071	Transportation, Storage, and Distribution Mgrs.	13.7%	34	117	■ ■ □ □	\$36.59	\$18.55	1.97
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	14.9%	37	190	■ □ □ □	\$27.64	\$37.92	0.73
37-2011	Janitors/Cleaners, Except Maids & Housekeepers	14.5%	36	1,824	□ □ □ □	\$8.74	\$11.57	0.76
51-2092	Team Assemblers	15.1%	38	1,150	□ □ □ □	\$11.28	\$29.73	0.38
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	14.6%	36	125	■ ■ □ □	\$11.61	\$16.74	0.69
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	15.3%	38	901	□ □ □ □	\$13.83	\$22.98	0.60
43-5061	Production, Planning, and Expediting Clerks	14.6%	37	392	□ □ □ □	\$19.55	\$28.88	0.68
51-9111	Packaging and Filling Machine Workers	11.8%	29	616	□ □ □ □	\$11.20	\$13.96	0.80
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	14.0%	35	1,059	□ □ □ □	\$21.01	\$59.92	0.35
43-4151	Order Clerks	9.4%	24	99	■ □ □ □	\$11.68	\$25.85	0.45
43-3031	Bookkeeping, Accounting, and Auditing Clerks	14.3%	36	1,370	□ □ □ □	\$13.05	\$13.24	0.99

Source: EMSI Complete Employment 2014.2, TIP Strategies

STAFFING SCENARIOS: LOGISTICS AND DISTRIBUTION (CONTINUED)

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Logistics and distribution
 Facility type **Support Activities for Rail Transportation**
 NAICS 488210
 Jobs 250

SUPPLY INDICATOR

■■■■ Greater than 75% of current employment
 ■■■■ Greater than 50% of current employment
 ■■■ Greater than 25% of current employment
 ■■■ Greater than 10% of current employment
 □□□□ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		Ratio (US=1.00)
						Region	US	
49-3043	Rail Car Repairers	18.1%	45	71	■■■■■	\$17.68	\$22.64	0.78
53-7051	Industrial Truck and Tractor Operators	8.0%	20	795	□□□□	\$12.95	\$26.15	0.50
53-7062	Laborers/Freight, Stock, & Material Movers, Hand	6.3%	16	2,606	□□□□	\$9.90	\$45.36	0.22
53-4021	Railroad Brake, Signal, and Switch Operators	5.8%	14	36	■■■	\$23.29	\$25.75	0.90
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	5.7%	14	<10		-	\$20.64	
51-4121	Welders, Cutters, Solderers, and Brazers	3.4%	9	1,377	□□□□	\$15.50	\$22.39	0.69
43-9061	Office Clerks, General	2.9%	7	2,594	□□□□	\$10.52	\$16.94	0.62
53-7061	Cleaners of Vehicles and Equipment	2.8%	7	377	□□□□	\$9.19	\$18.05	0.51
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	2.7%	7	693	□□□□	\$29.51	\$38.63	0.76
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	2.6%	7	190	□□□□	\$27.64	\$16.28	1.70
53-3032	Heavy and Tractor-Trailer Truck Drivers	2.6%	6	3,435	□□□□	\$15.14	\$12.43	1.22
11-1021	General and Operations Managers	2.4%	6	1,537	□□□□	\$34.12	\$34.50	0.99
53-6051	Transportation Inspectors	2.3%	6	34	■□□□	\$15.05	\$45.68	0.33
49-9071	Maintenance and Repair Workers, General	2.0%	5	1,715	□□□□	\$14.08	\$42.55	0.33
47-4061	Rail-Track Laying/Maintenance Equip. Operators	2.1%	5	21	■□□□	\$20.22	\$18.55	1.09
53-7121	Tank Car, Truck, and Ship Loaders	1.9%	5	12	■■■	\$12.51	\$37.92	0.33
51-9122	Painters, Transportation Equipment	1.7%	4	157	□□□□	\$15.92	\$11.57	1.38
53-3099	Motor Vehicle Operators, All Other	1.6%	4	54	□□□□	\$11.14	\$29.73	0.37
53-7021	Crane and Tower Operators	1.5%	4	43	□□□□	\$24.63	\$16.74	1.47
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	1.3%	3	416	□□□□	\$17.45	\$22.98	0.76
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1.2%	3	901	□□□□	\$13.83	\$28.88	0.48
53-4099	Rail Transportation Workers, All Other	1.1%	3	<10		-	\$13.96	
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1.0%	2	2,113	□□□□	\$12.29	\$59.92	0.21
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	0.9%	2	154	□□□□	\$20.66	\$25.85	0.80
53-4031	Railroad Conductors and Yardmasters	1.0%	2	52	□□□□	\$27.43	\$13.24	2.07

Source: EMSI Complete Employment 2014.2, TIP Strategies

LOGISTICS AND DISTRIBUTION (CONT.)

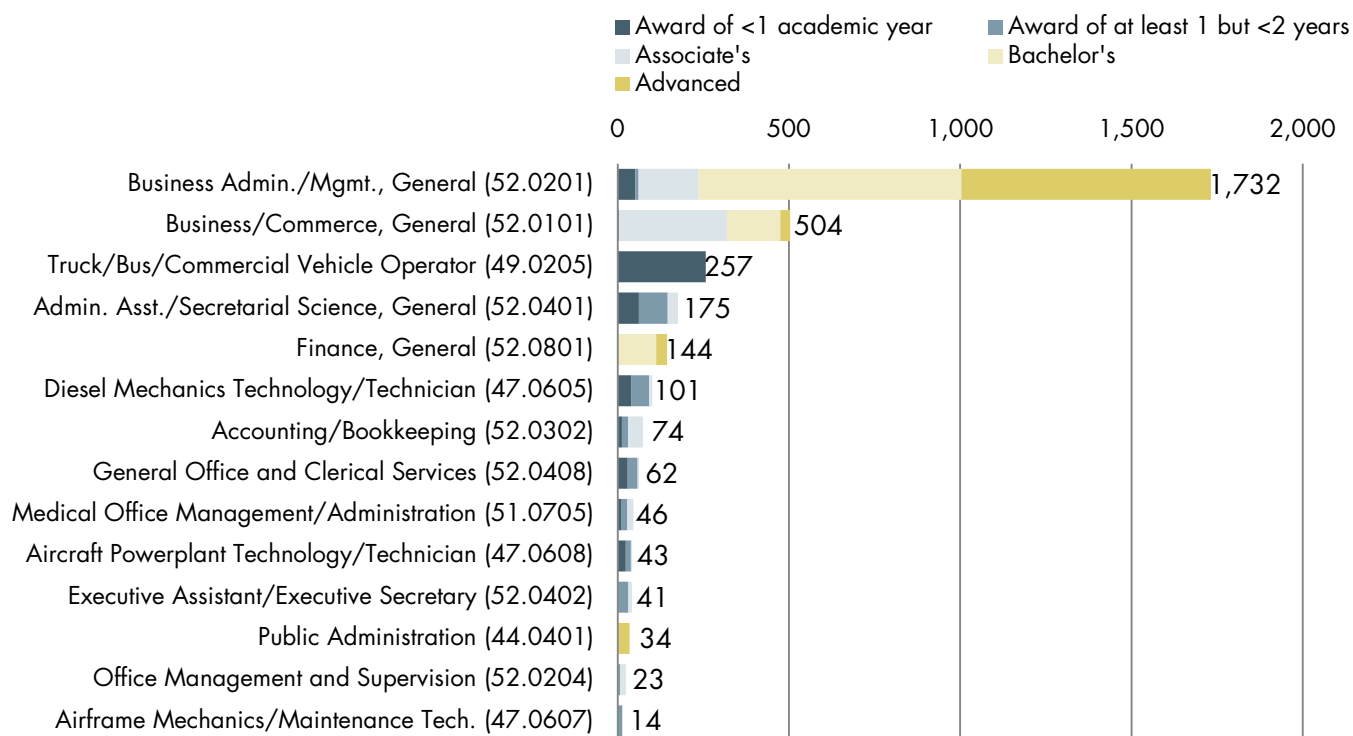
General business coursework is often the largest relevant field of study in a given sector, reflecting the presence of management positions across virtually every industry and its role as a foundation for other similar professions. This is true for the Logistics and Distribution sector, with the largest number of awards—an average of roughly 1,700 annually—occurring in Business Administration and Management, General (CIP 52.0201). The majority of these (an average of 86 percent) are conferred at the Bachelor’s level or above, including a large number of advanced degrees (those issued at the Master’s level or above). Business/Commerce, General (CIP 52.0101) is a distant second with an average of roughly 500 awards conferred annually among the schools analyzed. A broad variety of fields of study can also prepare one for management positions, which explains the presence of Public Administration (CIP 44.0401) and Medical Office Management/Administration. (CIP 51.0705) among the relevant completions. These are cross-walked as fields of study that prepare workers for General and Operations Managers (SOC 11-1021) and First-Line Supervisors of Office and Administrative Support Workers (SOC 43-1011) positions, respectively.

Truck driving certificate programs, which support one of the sector’s most essential jobs, are offered at a number of institutions in the area, including the University of Arkansas Community College-Hope, with training provided through a partnership with Texarkana’s Southern Refrigerated Transport, Inc.

FIGURE 18: COMPLETIONS IN RELATED FIELDS OF STUDY: LOGISTICS & DISTRIBUTION

THREE-YEAR AVERAGE OF CERTIFICATES AND DEGREES CONFERRED FOR CREDIT, 2010-2012

By award level and Classification of Instructional Programs (CIP) code



Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) surveys.

Note: Data shown was compiled for 48 colleges and universities within 125 miles of Texarkana. For additional details on the analysis, including a complete list of schools, see the Volume 2, Appendix D. IPEDS data include only schools eligible to participate in federal financial aid programs. Figures shown include first and second majors. Cosmetology schools were excluded from this analysis.

ENERGY

The Energy sector includes a broad array of industries ranging from utility providers to manufacturers of oil and gas field equipment to contractors in energy efficiency-related fields (such as heating and air-conditioning). Taken together, the sector employs just over 4,600 people in the 12-county region with nearly 400 establishments. Nationally, the largest job gains, in percentage terms, over the past decade have been in Support Activities for Mining (NAICS 2131), an industry that provides services to a range of extraction operations, including oil and gas.

Earnings per worker (EPW)—a measure encompassing wages and benefits as well as proprietors’ income and corporate profits—exceeds \$100,000 in several industries within the sector, including those related to electric power generation, coal mining, and transportation and distribution of natural gas.

FIGURE 19: ENERGY (SERVICES & MFG.)
 DISTRIBUTION OF JOBS IN 12-COUNTY REGION, 2013
 Lowest number of jobs (light) to highest (dark)

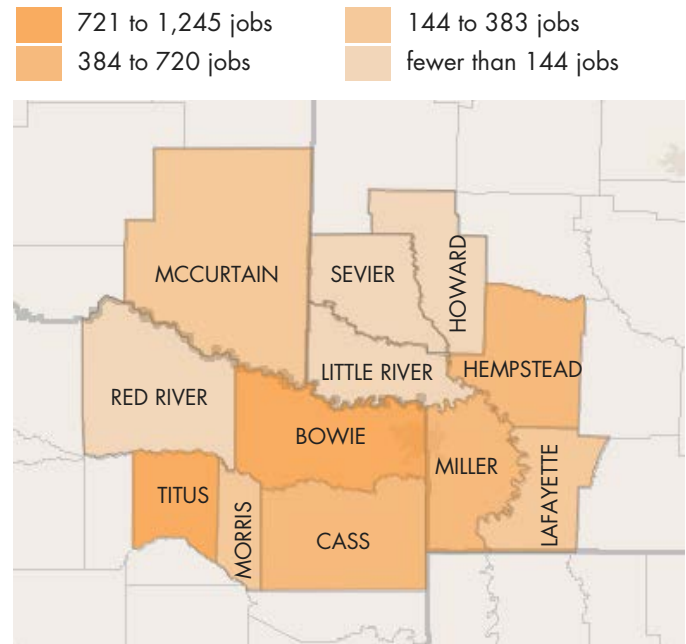


FIGURE 20: REGIONAL EMPLOYMENT OVERVIEW: ENERGY (SERVICES & MANUFACTURING)
 SNAPSHOT OF SELECTED INDUSTRIES WITHIN SECTOR

NAICS Code	Description	2013 Jobs	LQ (US = 1.00)	% Chg., 2003-2013			Est.	EPW
				Region	US	Est.		
2382	Building Equipment Contractors	1,327	0.75	2.8% ▲	-4.1% ▼	164	\$44,658	
2211	Electric Power Generation, Transmission/Distrib.	620	1.79	3.2% ▲	-6.3% ▼	20	\$111,115	
2371	Utility System Construction	550	1.34	1.3% ▲	17.6% ▲	28	\$52,895	
3251	Basic Chemical Manufacturing	329	2.59	46.9% ▲	-12.1% ▼	<10	\$65,126	
5413	Architectural, Engineering, and Related Services	317	0.25	9.3% ▲	7.6% ▲	45	\$51,312	
2131	Support Activities for Mining	299	0.81	64.3% ▲	121.5% ▲	30	\$58,125	
4247	Petroleum/Petroleum Products Merchant Wholesalers	243	2.82	-2.4% ▼	-10.1% ▼	25	\$53,894	
2121	Coal Mining	223	3.18	-37.7% ▼	15.0% ▲	<10	\$105,811	
4236	Electrical/Electronic Goods Merchant Wholesalers	221	0.77	99.1% ▲	-8.7% ▼	18	\$61,103	
5416	Mgmt., Scientific, and Technical Consulting Services	214	0.17	63.4% ▲	54.2% ▲	38	\$43,493	
3359	Other Electrical Equipment and Component Mfg.	140	1.25	-38.1% ▼	-9.4% ▼	<10	\$77,570	
2111	Oil and Gas Extraction	104	0.60	246.7% ▲	58.0% ▲	10	\$82,513	
2212	Natural Gas Distribution	90	0.93	57.9% ▲	-1.4% ▼	<10	\$133,342	
5324	Comm./Ind. Machinery & Equip. Rental & Leasing	90	0.75	21.6% ▲	30.1% ▲	11	\$48,224	
2379	Other Heavy and Civil Engineering Construction	89	0.87	-52.9% ▼	-13.2% ▼	<10	\$64,256	
4862	Pipeline Transportation of Natural Gas	25	1.05	-62.7% ▼	-3.2% ▼	<10	\$107,340	

Source (all figures): EMSI Complete Employment 2014.2 Note: Earnings per worker (EPW) represents total annual earnings (wages, salaries, profits, benefits, and other compensation) divided by the number of jobs in the industry. It is not equivalent to wages paid to individual workers. EPW above the regional average for all industries (\$41,461) is **highlighted**. See Figure 7 (page 46) for a note regarding employment figures.

ENERGY (CONT.)

OUTLOOK & DRIVING TRENDS

Oil and gas has historically been one of the world’s most volatile industries, where sharp fluctuations in prices are seen more as the norm than not. During the last decade, however, the “bottom price” for all energy commodities has risen substantially and most analysts now agree that the era of “cheap oil” is over. This is due to growing demand for energy not only in the US but also among the world’s emerging economies—especially China and India. Because of these higher prices, domestic oil and gas drilling activity has increased substantially. While the increase is justified by higher prices, it has been enabled by the use of new technologies such as “fracking” and horizontal drilling.

The emergence of global warming as a serious political issue in the US has coincided with fluctuations in energy prices and deregulation of many state electricity markets. This perfect storm of events has created enormous interest in the development of energy sources and production technologies as an alternative to hydrocarbons, such as petroleum, natural gas, and coal. In addition, large corporations from Wal-Mart to Dell are now implementing significant steps toward reducing their carbon emissions. These and other factors have prompted a serious reconsideration of “alternative” and/or renewable energy resources, such as wind, solar, biomass/biofuels, hydrogen fuel cells, nuclear, and “clean-burning” coal, among others.

REGIONAL EMPLOYERS

- REG (Renewable Energy Group)
- Southwestern Electric Power Company
- American Electric Power Co
- TXU Energy/Luminant
- Wholesale Electric
- Truman Arnold Companies (TAC Energy)
- WOI Petroleum, Inc.
- JCM Industries
- Texas Tubular Products
- US Steel Tubular Products (Wheeling Machine Products Inc. and Lone Star Tubular Operations)

SITE CONSIDERATIONS

- ✓ Proximity to concentrations of energy sources and markets/customers
- ✓ Access to skilled workforce, particularly engineering talent
- ✓ Access to research and development
- ✓ Strong transportation access, including rail and highway
- ✓ Outside earthquake/flood-prone regions

NETWORKING & RESEARCH

<i>Trade association</i>	<i>Website</i>
Business Council for Sustainable Energy	www.bcse.org
Petroleum Equipment & Services Association	www.pesa.org
American Council on Renewable Energy	www.acore.org
American Petroleum Institute	www.api.org
American Society of Heating, Refrigerating, and A/C Engineers	www.ashrae.org
American Council for an Energy-Efficient Economy	www.aceee.org
American Gas Association	www.aga.org
Independent Petroleum Association of America	www.ipaa.org

Source: TIP Strategies research

ENERGY (CONT.)

The diversity of industries in this sector is reflected in the array of occupations it employs. The largest occupation, in percentage terms, is Electricians (SOC 47-2111), a position found in a range of energy-related industries, including electric power generation and transmission, support operations for mining and drilling, and energy-efficiency activities. Heavy and Tractor-Trailer Truck Drivers (SOC 53-3032) are the largest of the sector’s leading occupations in terms of employment in the 12-county region, accounting for nearly 3,500 jobs. Truck drivers play a key role for some industry segments, including petrochemicals, mining, and fuel distributors.

Three affected occupations are typically employed by industries in the energy sector: Mobile Heavy Equipment Mechanics, Except Engines (SOC 49-3042); Welders, Cutters, Solderers, and Brazers (SOC 51-4121); and Control and Valve Installers and Repairers, Except Mechanical Door (SOC 49-9012). These occupations are also among the most concentrated in the region as evidenced by location quotients (LQs) well above the national average (1.00).

FIGURE 21: KEY OCCUPATIONS: ENERGY (SERVICES & MANUFACTURING)
 SELECTED CHARACTERISTICS OF LEADING OCCUPATIONS (BASED ON SHARE OF TOTAL EMPLOYMENT)

SOC Code	Description	% of Total			% 55+ Years	Educational attainment				
		Emp. in Sector	Emp 2013	LQ		For workers 25+ years old				
					0%	25%	50%	75%	100%	
47-2111	Electricians	6%	552	1.01	19%	47%	46%			
47-2061	Construction Laborers	5%	1,198	1.10	14%	74%		21%		
53-3032	Heavy and Tractor-Trailer Truck Drivers	4%	3,435	2.15	29%	68%		27%		
49-9051	Electrical Power-Line Installers and Repairers	3%	158	1.55	16%	51%		44%		
47-1011	1st-Line Sprvrs., Construction/Extraction Workers	3%	568	1.06	23%	56%		33%	11%	
47-2073	Operating Engineers/Other Constr. Equip.	3%	423	1.32	24%	75%		22%		
47-2152	Plumbers, Pipefitters, and Steamfitters	3%	236	0.65	13%	63%		33%		
43-9061	Office Clerks, General	2%	2,594	0.91	26%	35%	46%		20%	
49-9021	HAVC/Refrigeration Mechanics and Installers	2%	221	0.85	11%	53%		43%		
11-1021	General and Operations Managers	2%	1,537	0.87	23%	18%	33%		49%	
51-8013	Power Plant Operators	2%	125	3.49	23%	33%	51%		16%	
43-6014	Sec./Admin. Assts., Exc. Legal, Medical, & Exec.	2%	2,113	0.94	29%	32%	49%		19%	
41-4012	Sales Reps., Whsl & Mfg., Except Tech./Scientific	2%	1,059	0.79	24%	21%	32%		47%	
49-3042	Mobile Heavy Equip. Mechanics, Except Engines	2%	1,268	11.69	22%	63%		34%		
53-7062	Laborers/Freight & Material Movers, Hand	2%	2,606	1.30	15%	68%		26%		
51-4121	Welders, Cutters, Solderers, and Brazers	2%	1,377	4.24	14%	72%		26%		
49-1011	1st-Line Sprvrs., Mechanics/Installers/Repairers	2%	693	1.78	24%	42%	44%		14%	
47-2031	Carpenters	2%	724	0.80	17%	67%		26%		
43-3031	Bookkeeping, Accounting, and Auditing Clerks	1%	1,370	0.85	31%	33%	49%		17%	
11-9021	Construction Managers	1%	342	1.04	23%	34%	33%		34%	
49-9071	Maintenance and Repair Workers, General	1%	1,715	1.40	26%	58%		36%		
51-1011	1st-Line Sprvrs., Production/Operating Workers	1%	1,008	1.93	20%	49%		34%	16%	
49-9012	Control/Valve Installers & Repairers	1%	91	2.52	24%	53%		42%		
43-4051	Customer Service Representatives	1%	1,019	0.48	16%	32%	44%		24%	
49-9041	Industrial Machinery Mechanics	1%	811	2.83	23%	54%		41%		

Source: EMSI Complete Employment 2014.2, U.S. Bureau of Labor Statistics Note: Includes all occupations comprising at least 1 percent of employment in the sector. Occupations likely to be affected by layoffs at RRAD are highlighted in gold. Occupations with LQs above 1.25 are noted in orange; those with greater than 25 percent of the workforce aged 55 years and over are in blue.

FIGURE 22: STAFFING SCENARIOS: ENERGY (SERVICES & MANUFACTURING)

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Energy
 Facility type **Support Activities for Oil and Gas Operations**
 NAICS 213112
 Jobs 250

SUPPLY INDICATOR

■■■■ Greater than 75% of current employment
 ■■■■ Greater than 50% of current employment
 ■■■□ Greater than 25% of current employment
 ■□□□ Greater than 10% of current employment
 □□□□ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
47-5013	Service Unit Operators, Oil, Gas, and Mining	12.6%	31	46	■■■■□	\$20.69	\$20.18	1.03
47-5071	Roustabouts, Oil and Gas	12.0%	30	46	■■■■□	\$15.95	\$16.41	0.97
53-3032	Heavy and Tractor-Trailer Truck Drivers	5.3%	13	3,435	□□□□	\$15.14	\$18.05	0.84
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	5.1%	13	568	□□□□	\$20.57	\$25.68	0.80
47-5012	Rotary Drill Operators, Oil and Gas	4.9%	12	27	■■□□	\$20.63	\$23.66	0.87
47-5011	Derrick Operators, Oil and Gas	4.8%	12	15	■■■■■	\$26.97	\$22.55	1.20
47-5081	Helpers-Extraction Workers	4.2%	10	45	■□□□	\$15.06	\$15.38	0.98
11-1021	General and Operations Managers	2.3%	6	1,537	□□□□	\$34.12	\$45.68	0.75
47-2073	Operating Engineers and Other Construction Equipment Operators	2.0%	5	423	□□□□	\$14.70	\$19.86	0.74
47-2061	Construction Laborers	1.9%	5	1,198	□□□□	\$11.01	\$13.89	0.79
49-9041	Industrial Machinery Mechanics	1.8%	5	811	□□□□	\$21.31	\$22.39	0.95
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1.7%	4	2,113	□□□□	\$12.29	\$15.57	0.79
53-7073	Wellhead Pumps	1.6%	4	11	■■□□	-	\$22.12	
51-4121	Welders, Cutters, Solderers, and Brazers	1.5%	4	1,377	□□□□	\$15.50	\$17.37	0.89
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	1.4%	4	2,606	□□□□	\$9.90	\$11.57	0.86
43-9061	Office Clerks, General	1.4%	3	2,594	□□□□	\$10.52	\$13.24	0.79
43-3031	Bookkeeping, Accounting, and Auditing Clerks	1.3%	3	1,370	□□□□	\$13.05	\$16.91	0.77
17-2171	Petroleum Engineers	1.3%	3	16	■□□□	\$47.18	\$62.62	0.75
47-5099	Extraction Workers, All Other	1.3%	3	<10		-	\$18.89	
53-7072	Pump Operators, Except Wellhead Pumps	1.2%	3	<10		-	\$21.65	
19-4041	Geological and Petroleum Technicians	1.2%	3	<10		-	\$25.35	
53-7021	Crane and Tower Operators	1.1%	3	43	□□□□	\$24.63	\$22.73	1.08
49-9071	Maintenance and Repair Workers, General	1.1%	3	1,715	□□□□	\$14.08	\$16.94	0.83
47-5021	Earth Drillers, Except Oil and Gas	1.0%	3	15	■□□□	\$19.26	\$19.17	1.00
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	0.9%	2	901	□□□□	\$13.83	\$16.74	0.83

Source: EMSI Complete Employment 2014.2, TIP Strategies

STAFFING SCENARIOS: ENERGY (SERVICES & MANUFACTURING) (CONTINUED)

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Energy
 Facility type **Petrochemical Manufacturing**
 NAICS 325110
 Jobs 250

SUPPLY INDICATOR

■ ■ ■ ■ Greater than 75% of current employment
 ■ ■ ■ □ Greater than 50% of current employment
 ■ ■ □ □ Greater than 25% of current employment
 ■ □ □ □ Greater than 10% of current employment
 □ □ □ □ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
51-9011	Chemical Equipment Operators and Tenders	14.3%	36	75	■ ■ □ □	\$25.25	\$22.64	1.12
51-8091	Chemical Plant and System Operators	14.0%	35	55	■ ■ ■ □	\$29.74	\$26.15	1.14
17-2041	Chemical Engineers	4.6%	12	21	■ ■ ■ □	\$21.25	\$45.36	0.47
51-1011	First-Line Sprvrs., Production & Operating Workers	4.2%	11	1,008	□ □ □ □	\$23.46	\$25.75	0.91
19-4031	Chemical Technicians	3.4%	8	33	■ ■ □ □	\$25.52	\$20.64	1.24
49-9041	Industrial Machinery Mechanics	3.2%	8	811	□ □ □ □	\$21.31	\$22.39	0.95
49-9071	Maintenance and Repair Workers, General	3.0%	8	1,715	□ □ □ □	\$14.08	\$16.94	0.83
53-3032	Heavy and Tractor-Trailer Truck Drivers	2.6%	6	3,435	□ □ □ □	\$15.14	\$18.05	0.84
17-2141	Mechanical Engineers	2.0%	5	134	□ □ □ □	\$32.68	\$38.63	0.85
51-9023	Mixing and Blending Machine Workers	1.9%	5	188	□ □ □ □	\$21.01	\$16.28	1.29
51-9111	Packaging and Filling Machine Workers	1.9%	5	616	□ □ □ □	\$11.20	\$12.43	0.90
19-2031	Chemists	1.7%	4	26	■ □ □ □	\$27.16	\$34.50	0.79
11-1021	General and Operations Managers	1.6%	4	1,537	□ □ □ □	\$34.12	\$45.68	0.75
11-3051	Industrial Production Managers	1.5%	4	191	□ □ □ □	\$38.23	\$42.55	0.90
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	1.4%	3	57	□ □ □ □	\$16.28	\$18.55	0.88
17-2112	Industrial Engineers	1.2%	3	154	□ □ □ □	\$35.10	\$37.92	0.93
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	1.2%	3	2,606	□ □ □ □	\$9.90	\$11.57	0.86
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	1.1%	3	58	□ □ □ □	\$30.64	\$29.73	1.03
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1.1%	3	901	□ □ □ □	\$13.83	\$16.74	0.83
47-2111	Electricians	1.1%	3	552	□ □ □ □	\$18.63	\$22.98	0.81
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	1.0%	3	693	□ □ □ □	\$29.51	\$28.88	1.02
43-5071	Shipping, Receiving, and Traffic Clerks	1.0%	3	626	□ □ □ □	\$14.23	\$13.96	1.02
11-9041	Architectural and Engineering Managers	0.9%	2	62	□ □ □ □	\$58.32	\$59.92	0.97
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	0.9%	2	1,059	□ □ □ □	\$21.01	\$25.85	0.81
43-9061	Office Clerks, General	0.9%	2	2,594	□ □ □ □	\$10.52	\$13.24	0.79

Source: EMSI Complete Employment 2014.2, TIP Strategies

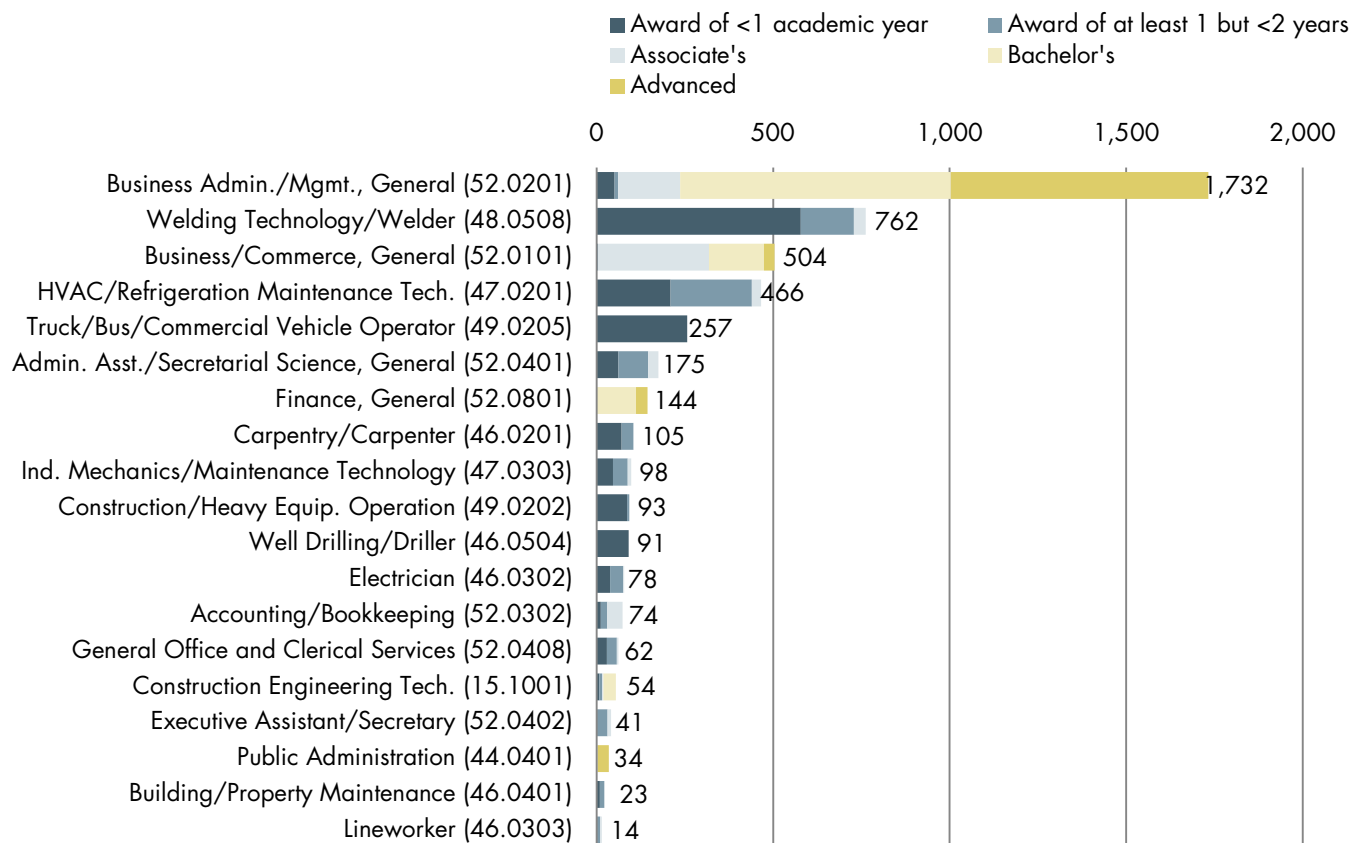
ENERGY (CONT.)

Beyond the business- and welding-related coursework that is common across sectors, relevant fields of study for the Energy sector include a number in the skilled trades. This is, in part, because the sector includes energy-efficiency activities, such as retrofitting existing homes with more efficient heating and cooling equipment and enhancing existing insulation. The schools analyzed produce nearly 500 graduates annually with credentials in fields such as heating and air conditioning. The awards conferred in this field—HVAC/Refrigeration Maintenance Technology/Technician (CIP 47.0201)—are fairly evenly split between awards of less than one year and those between one year, but less than two years in length. As noted previously, electricians are used in a variety of industries in the sector from those that support oil and gas drilling to electric suppliers and energy-efficiency companies. Other relevant fields of study include those that prepare people for careers as truck drivers, heavy equipment operators, well drillers, and utility line workers. Like many industrial jobs, however, training for a number of the sector’s key jobs is not typically undertaken as part of an academic degree program.

FIGURE 23: COMPLETIONS IN RELATED FIELDS OF STUDY: ENERGY (SERVICES & MFG.)

THREE-YEAR AVERAGE OF CERTIFICATES AND DEGREES CONFERRED FOR CREDIT, 2010-2012

By award level and Classification of Instructional Programs (CIP) code



Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) surveys.

Note: Data shown was compiled for 48 colleges and universities within 125 miles of Texarkana. For additional details on the analysis, including a complete list of schools, see the Volume 2, Appendix D. IPEDS data include only schools eligible to participate in federal financial aid programs. Figures shown include first and second majors. Cosmetology schools were excluded from this analysis.

MACHINERY

Machinery manufacturing is a large and complex industry which includes a variety of highly related but distinct product markets. Employment in the sector is fairly concentrated, with roughly 2,300 workers employed across 14 establishments in the 12-county region. In fact, two firms account for the majority of the region’s machinery manufacturing jobs: Husqvarna’s Howard County (AR) plant (which manufactures chainsaws, trimmers and blowers), and farm equipment producer, Priefert Manufacturing, located in Titus County (TX). These two counties also have the largest number of jobs, followed by Sevier County, Arkansas.

While some segments have experienced employment declines over the past decade, two have experienced significant growth in percentage terms (albeit from a small base): Other General Purpose Machinery Manufacturing (NAICS 3339) and Engine, Turbine, and Power Transmission Equipment Manufacturing (NAICS 3336). Earnings per worker are above the regional average for all industries in this sector.

FIGURE 24: MACHINERY

DISTRIBUTION OF JOBS IN 12-COUNTY REGION, 2013
Lowest number of jobs (light) to highest (dark)

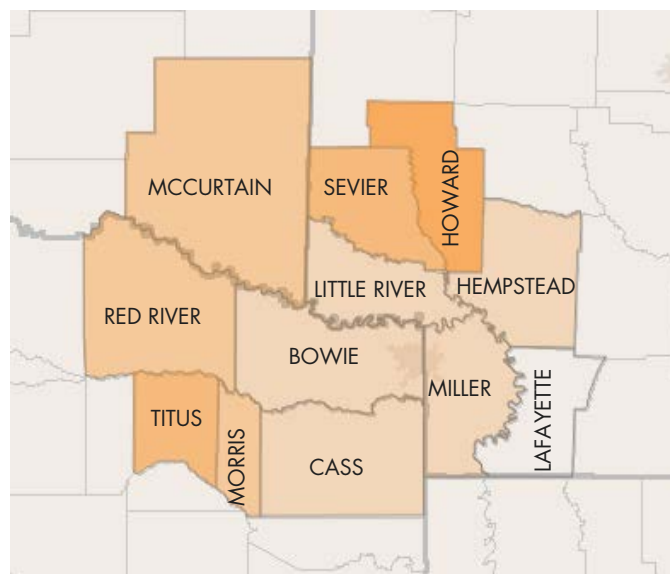


FIGURE 25: REGIONAL EMPLOYMENT OVERVIEW: MACHINERY

SNAPSHOT OF SELECTED INDUSTRIES WITHIN SECTOR

NAICS Code	Description	2013 Jobs	LQ (US = 1.00)	% Chg., 2003-2013		Est.	EPW
				Region	US		
3331	Agriculture, Construction, and Mining Machinery Manufacturing	2,022	9.13	-22.4% ▼	32.1% ▲	<10	\$46,761
3339	Other General Purpose Machinery Manufacturing	95	0.42	163.9% ▲	-4.3% ▼	<10	\$59,172
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	73	0.83	35.2% ▲	5.9% ▲	<10	\$42,881
3332	Industrial Machinery Manufacturing	33	0.35	-50.0% ▼	-14.1% ▼	<10	\$55,332
3335	Metalworking Machinery Manufacturing	31	0.19	— ▲	-12.4% ▼	<10	\$54,617
3333	Commercial and Service Industry Machinery Manufacturing	<10	—	—	-26.3% ▼	<10	\$55,640

Source (all figures): EMSI Complete Employment 2014.2 Note: Earnings per worker (EPW) represents total annual earnings (wages, salaries, profits, benefits, and other compensation) divided by the number of jobs in the industry. It is not equivalent to wages paid to individual workers. EPW above the regional average for all industries (\$41,461) is **highlighted**. See Figure 7 (page 46) for a note regarding employment figures.

MACHINERY (CONT.)

OUTLOOK & DRIVING TRENDS

The continued expansion of global production will be the driving force for machinery manufacturing. Canada, Mexico, and China are the leading markets for US machinery exports, accounting for a substantial share of the industry's sales. However, emerging markets in Latin America and Asia were cited as the most promising markets by HSBC's Global Connections US Trade Forecast Report. Rising income levels, coupled with massive investments in infrastructure and equipment, are expected to result in substantial and sustained growth in the exports of machinery and infrastructure through 2030. China is rapidly growing its business in this category and will continue to compete in categories in which it previously was not competitive.

Domestically, growth will be driven by continued automation of the manufacturing process, replacement of aging equipment (as businesses replace equipment they held on to during the recession) and re-shoring, though the size and sustainability of this trend is unknown. Manufacturers' shipments for industrial machinery, a statistic which measures the dollar value of products sold, have risen steadily since 2009. However, the sector's strong growth is not necessarily reflected in employment levels across component industries. Like manufacturers generally, machinery equipment manufacturers continue to produce more with fewer workers. In effect, the very force that is helping to drive demand for industrial machinery—automation—may also be keeping the industry's employment levels low.

NETWORKING & RESEARCH

<i>Trade association</i>	<i>Website</i>
Association of Equipment Manufacturers	www.aem.org
Farm Equipment Manufacturers Association	www.farmequip.org
Motor & Equipment Manufacturers Association	www.mema.org
Society of Manufacturing Engineers	www.sme.org
National Association of Manufacturers	www.nam.org
Process Equipment Manufacturers' Association	www.pemanet.org

Source: TIP Strategies research

REGIONAL EMPLOYERS

- Priefert Manufacturing
- Husqvarna

SITE CONSIDERATIONS

- ✓ High quality power supply
- ✓ Efficient access to road and rail
- ✓ Strong supplier base
- ✓ Favorable tax structure
- ✓ Proximity to logistics assets
- ✓ Available labor and cost

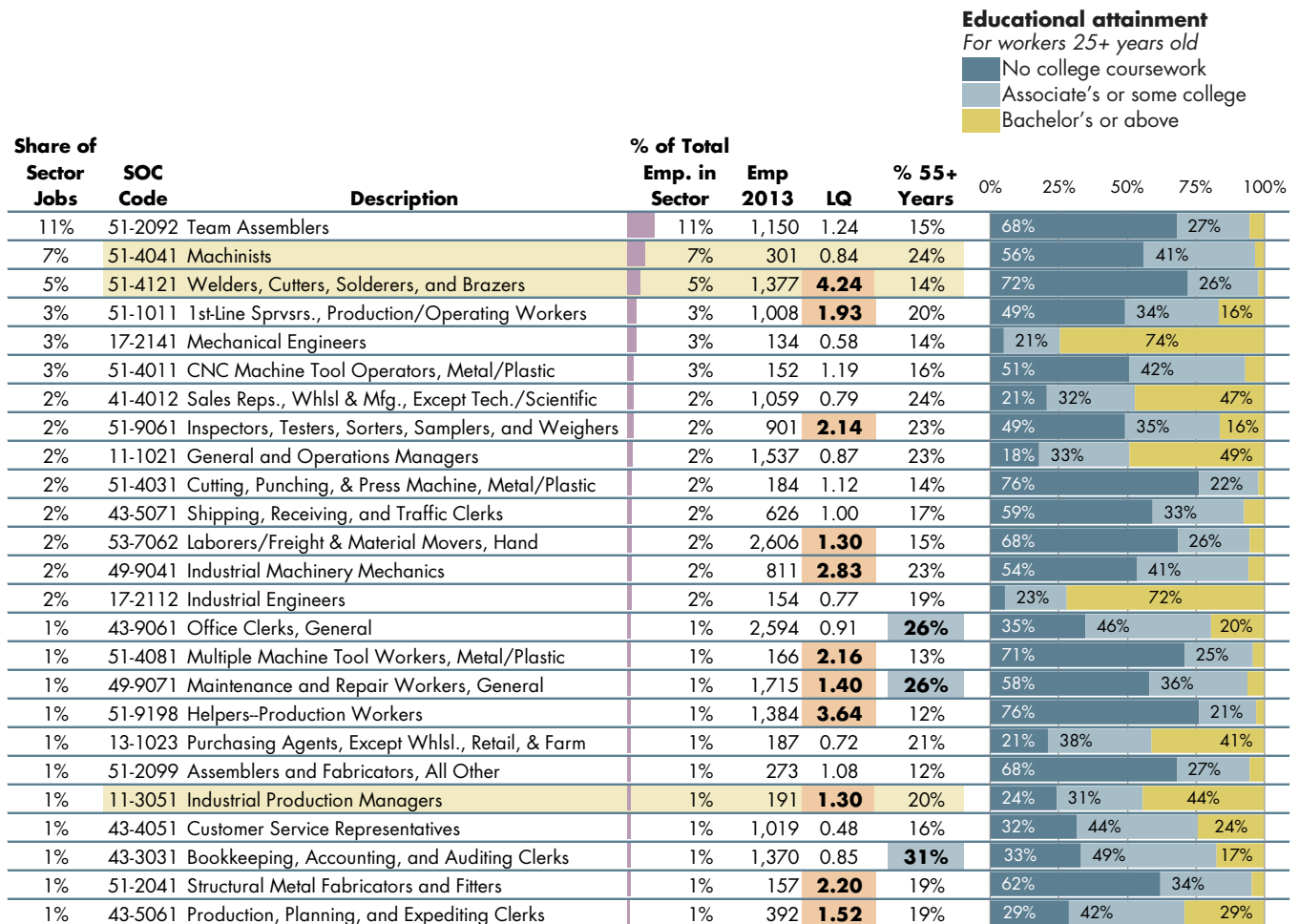
MACHINERY (CONT.)

Team assemblers are the largest occupation in the sector, accounting for 11 percent of total employment. Rounding out the top three are two affected occupations—Machinists (SOC 51-4041) and Welders, Cutters, Solderers, and Brazers (SOC 51-4121). Combined, these two positions comprise another 12 percent of the industrial machinery sector’s job base. Industrial Production Managers (SOC 11-3051), another of the occupations likely to be affected by layoffs at RRAD, are also among the top occupations for the sector in terms of employment.

A number of positions in this sector are likely to be held by workers with a four-year degree or higher, including Mechanical Engineers (SOC 17-2141) and Industrial Engineers (SOC 17-2112), Sales Representatives (SOC 41-4012), and management positions. However, a large share of occupations are still likely to be held by workers with no college experience at all.

FIGURE 26: KEY OCCUPATIONS: MACHINERY

SELECTED CHARACTERISTICS OF LEADING OCCUPATIONS (BASED ON SHARE OF TOTAL EMPLOYMENT)



Source: EMSI Complete Employment 2014.2, U.S. Bureau of Labor Statistics Note: Includes all occupations comprising at least 1 percent of employment in the sector. Occupations likely to be affected by layoffs at RRAD are highlighted in gold. Occupations with LQs above 1.25 are noted in orange; those with greater than 25 percent of the workforce aged 55 years and over are in blue.

FIGURE 27: STAFFING SCENARIOS: MACHINERY

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Machinery
 Facility type **Farm Machinery and Equipment Mfg.**
 NAICS 333111
 Jobs 250

SUPPLY INDICATOR

- Greater than 75% of current employment
- Greater than 50% of current employment
- Greater than 25% of current employment
- Greater than 10% of current employment
- Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage Ratio (US=1.00)		
						Region	US	
51-2092	Team Assemblers	13.6%	34	1,150	□□□□	\$11.28	\$22.64	0.50
51-4121	Welders, Cutters, Solderers, and Brazers	9.3%	23	1,377	□□□□	\$15.50	\$26.15	0.59
51-4041	Machinists	4.9%	12	301	□□□□	\$18.14	\$45.36	0.40
51-1011	First-Line Sprvrs., Production/Operating Workers	3.2%	8	1,008	□□□□	\$23.46	\$25.75	0.91
49-9041	Industrial Machinery Mechanics	2.7%	7	811	□□□□	\$21.31	\$20.64	1.03
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	2.5%	6	72	□□□□	\$15.67	\$22.39	0.70
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2.4%	6	901	□□□□	\$13.83	\$16.94	0.82
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	2.2%	6	184	□□□□	\$11.70	\$18.05	0.65
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2.2%	5	166	□□□□	\$14.96	\$38.63	0.39
51-9121	Coating, Painting, and Spraying Machine Workers	2.2%	5	124	□□□□	\$13.46	\$16.28	0.83
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	2.1%	5	1,059	□□□□	\$21.01	\$12.43	1.69
17-2141	Mechanical Engineers	2.1%	5	134	□□□□	\$32.68	\$34.50	0.95
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	2.1%	5	2,606	□□□□	\$9.90	\$45.68	0.22
51-2031	Engine and Other Machine Assemblers	1.9%	5	34	■□□□	\$15.58	\$42.55	0.37
51-4011	CNC Machine Tool Operators, Metal and Plastic	1.8%	4	152	□□□□	\$20.44	\$18.55	1.10
51-2041	Structural Metal Fabricators and Fitters	1.7%	4	157	□□□□	\$18.35	\$37.92	0.48
17-2112	Industrial Engineers	1.3%	3	154	□□□□	\$35.10	\$11.57	3.03
11-1021	General and Operations Managers	1.3%	3	1,537	□□□□	\$34.12	\$29.73	1.15
43-5071	Shipping, Receiving, and Traffic Clerks	1.3%	3	626	□□□□	\$14.23	\$16.74	0.85
51-9198	Helpers-Production Workers	1.2%	3	1,384	□□□□	\$11.13	\$22.98	0.48
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	1.2%	3	187	□□□□	\$34.61	\$28.88	1.20
49-9071	Maintenance and Repair Workers, General	1.1%	3	1,715	□□□□	\$14.08	\$13.96	1.01
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1.1%	3	50	□□□□	\$14.87	\$59.92	0.25
53-7051	Industrial Truck and Tractor Operators	1.1%	3	795	□□□□	\$12.95	\$25.85	0.50
51-2099	Assemblers and Fabricators, All Other	1.1%	3	273	□□□□	\$16.34	\$13.24	1.23

Source: EMSI Complete Employment 2014.2, TIP Strategies

STAFFING SCENARIOS: MACHINERY (CONTINUED)

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Machinery
 Facility type **Oil and Gas Field Machinery and Equipment**
 NAICS 333132
 Jobs 250

SUPPLY INDICATOR

■ ■ ■ ■ Greater than 75% of current employment
 ■ ■ ■ □ Greater than 50% of current employment
 ■ ■ □ □ Greater than 25% of current employment
 ■ □ □ □ Greater than 10% of current employment
 □ □ □ □ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
51-4121	Welders, Cutters, Solderers, and Brazers	10.6%	26	1,377	□□□□	\$15.50	\$17.37	0.89
51-2092	Team Assemblers	8.3%	21	1,150	□□□□	\$11.28	\$13.32	0.85
51-4041	Machinists	6.4%	16	301	□□□□	\$18.14	\$18.94	0.96
51-1011	First-Line Supervisors of Production and Operating Workers	3.2%	8	1,008	□□□□	\$23.46	\$25.75	0.91
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2.8%	7	901	□□□□	\$13.83	\$16.74	0.83
49-9041	Industrial Machinery Mechanics	2.7%	7	811	□□□□	\$21.31	\$22.39	0.95
17-2141	Mechanical Engineers	2.4%	6	134	□□□□	\$32.68	\$38.63	0.85
51-2031	Engine and Other Machine Assemblers	2.3%	6	34	■□□□	\$15.58	\$17.36	0.90
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	2.3%	6	1,059	□□□□	\$21.01	\$25.85	0.81
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	2.3%	6	2,606	□□□□	\$9.90	\$11.57	0.86
51-2041	Structural Metal Fabricators and Fitters	2.2%	5	157	□□□□	\$18.35	\$17.19	1.07
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	1.9%	5	184	□□□□	\$11.70	\$14.27	0.82
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	1.8%	4	72	□□□□	\$15.67	\$16.65	0.94
51-9121	Coating, Painting, & Spraying Machine Workers	1.7%	4	124	□□□□	\$13.46	\$14.64	0.92
51-4011	CNC Machine Tool Operators, Metal and Plastic	1.6%	4	152	□□□□	\$20.44	\$17.10	1.20
11-1021	General and Operations Managers	1.6%	4	1,537	□□□□	\$34.12	\$45.68	0.75
51-4034	Lathe & Turning Machine Workers, Metal/Plastic	1.6%	4	50	□□□□	\$14.87	\$17.57	0.85
43-5071	Shipping, Receiving, and Traffic Clerks	1.5%	4	626	□□□□	\$14.23	\$13.96	1.02
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	1.5%	4	187	□□□□	\$34.61	\$28.32	1.22
51-9198	Helpers—Production Workers	1.4%	3	1,384	□□□□	\$11.13	\$10.96	1.02
43-5061	Production, Planning, and Expediting Clerks	1.3%	3	392	□□□□	\$19.55	\$21.10	0.93
17-2112	Industrial Engineers	1.3%	3	154	□□□□	\$35.10	\$37.92	0.93
51-4081	Multiple Machine Tool Workers, Metal and Plastic	1.2%	3	166	□□□□	\$14.96	\$16.32	0.92
49-9071	Maintenance and Repair Workers, General	1.2%	3	1,715	□□□□	\$14.08	\$16.94	0.83
43-9061	Office Clerks, General	1.1%	3	2,594	□□□□	\$10.52	\$13.24	0.79

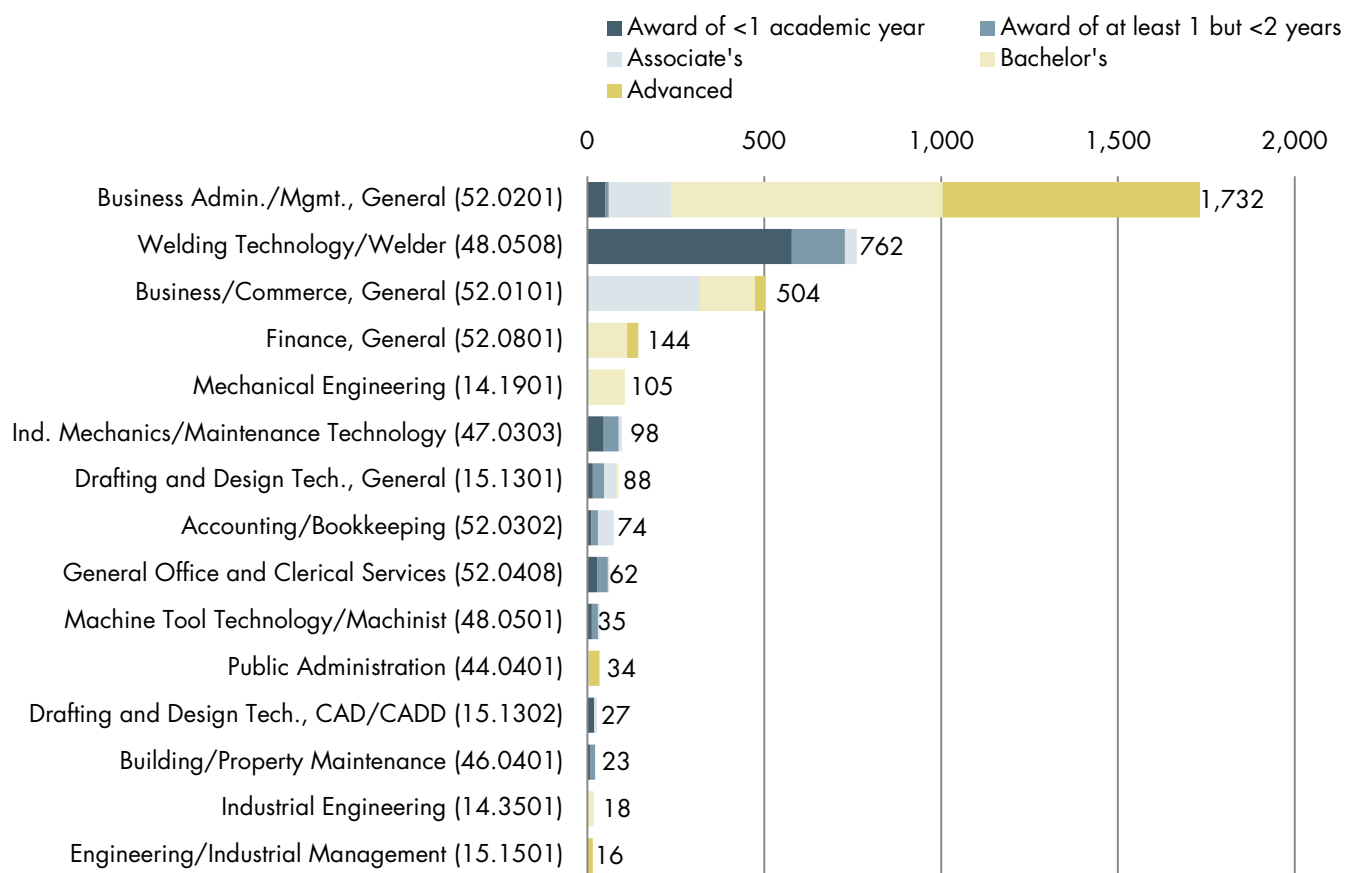
Source: EMSI Complete Employment 2014.2, TIP Strategies

MACHINERY (CONT.)

Along with coursework in welding and management, Mechanical Engineering (CIP 14.1901) is an important field of study that prepares workers for jobs in the Machinery sector. Among the schools included in the analysis, an average of slightly more than 100 awards are made in this field annually, all at the four-year level. Roughly one-half of the Bachelor’s degrees in Mechanical Engineering awarded during the three-year period analyzed—an average of 45 degrees per year—were conferred by Louisiana Tech University. LeTourneau University issued the second largest number of degrees in this field, averaging 34 per year. Engineering Technologies (CIP 15) is a related field of study that prepares individuals to apply basic engineering principles and technical skills in support of engineering and related projects. Drafting and Design Technology/Technician, General (CIP 15.1301), CAD/CADD Drafting and/or Design Technology/Technician (CIP 15.1302), and Engineering/Industrial Management (CIP 15.1501) are specific programs that support key occupations in the sector.

FIGURE 28: COMPLETIONS IN RELATED FIELDS OF STUDY: MACHINERY
 THREE-YEAR AVERAGE OF CERTIFICATES AND DEGREES CONFERRED FOR CREDIT, 2010-2012

By award level and Classification of Instructional Programs (CIP) code



Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) surveys.

Note: Data shown was compiled for 48 colleges and universities within 125 miles of Texarkana. For additional details on the analysis, including a complete list of schools, see the Volume 2, Appendix D. IPEDS data include only schools eligible to participate in federal financial aid programs. Figures shown include first and second majors. Cosmetology schools were excluded from this analysis.

TRANSPORTATION EQUIPMENT

Although commonly associated with the production of cars, the transportation equipment sector comprises several segments, including aviation and aerospace, rolling stock (rail), and truck and trailer manufacturing. Much of the region’s employment in this sector is concentrated in trailer manufacturing. Titus County (TX) in particular is home to a cluster of trailer manufacturers, including Big Tex Trailers, Performance Trailers, and Diamond C Trailers.

A number of industry segments in the transportation equipment sector experienced job losses between 2003 and 2013. However, many of these industries are not represented in the 12-county region. The region’s largest industry in the sector, trailer manufacturing, saw substantial gains during this period. Other segments that added jobs nationally include Aerospace Product and Parts Manufacturing (NAICS 3364) and Railroad Rolling Stock Manufacturing (NAICS 3365).

FIGURE 29: TRANSPORTATION EQUIPMENT
 DISTRIBUTION OF JOBS IN 12-COUNTY REGION, 2013
 Lowest number of jobs (light) to highest (dark)

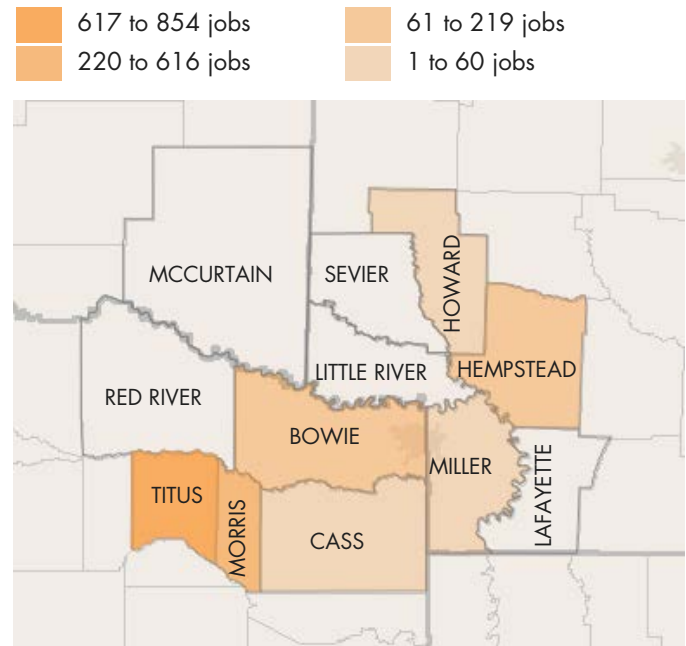


FIGURE 30: REGIONAL EMPLOYMENT OVERVIEW: TRANSPORTATION EQUIPMENT
 SNAPSHOT OF SELECTED INDUSTRIES WITHIN SECTOR

NAICS Code	Description	2013	LQ	% Chg., 2003-2013		Est.	EPW
		Jobs	(US = 1.00)	Region	US		
3362	Motor Vehicle Body and Trailer Manufacturing	1,335	11.27	54.3% ▲	-13.6% ▼	18	\$52,639
3363	Motor Vehicle Parts Manufacturing	182	0.40	-62.0% ▼	-28.0% ▼	<10	\$55,015
3369	Other Transportation Equipment Manufacturing	21	0.73	— ▲	-15.4% ▼	<10	\$86,962
3361	Motor Vehicle Manufacturing	—	—	—	-30.1% ▼	—	—
3364	Aerospace Product and Parts Manufacturing	—	—	—	13.8% ▲	—	—
3365	Railroad Rolling Stock Manufacturing	—	—	—	10.0% ▲	—	—
3366	Ship and Boat Building	—	—	—	-10.8% ▼	—	—

Source (all figures): EMSI Complete Employment 2014.2 Note: Earnings per worker (EPW) represents total annual earnings (wages, salaries, profits, benefits, and other compensation) divided by the number of jobs in the industry. It is not equivalent to wages paid to individual workers. EPW above the regional average for all industries (\$41,461) is **highlighted**. See Figure 7 (page 46) for a note regarding employment figures.

TRANSPORTATION EQUIPMENT (CONT.)

OUTLOOK & DRIVING TRENDS

Strong global demand and improved economic conditions in the US are driving up sales across virtually every segment:

Automotive. US automotive production grew by nearly 7 percent in 2013, according to the International Organization of Motor Vehicle Manufacturers, while sales were up nearly 8 percent, with a total of 15.6 million cars sold. Foreign carmakers have made extensive investments in the US, primarily in the Southeast. Higher fuel efficiency standards, increased global manufacturing output, and rapidly increasing production capacity in Mexico are among the factors likely to present opportunities for US suppliers.

Rail. Demand for rail equipment manufacturing and refurbishing is also expected to continue its upward trend in response to economic conditions. In particular, the nation's shale gas boom has spurred strong demand for freight cars. Public-sector investments—for both new and existing transit systems—are driving orders for passenger cars.

Aviation/Aerospace. The commercial aviation industry has experienced record growth in recent years due to global demand for fleet replacement and passenger growth in emerging markets, according to the Aerospace Industries Association (AIA). The AIA points to continued double-digit increases in demand for civilian helicopters fueled by industries such as oil & gas exploration and law enforcement, as well as continued use in private and corporate transport.

REGIONAL EMPLOYERS

- Ledwell & Sons Enterprises
- BAE Systems
- Cooper Tire & Rubber
- Big Tex Trailer Manufacturing, Inc.
- Best Fender Products
- Diamond C Trailer Mfg.
- Parker Trailers

SITE CONSIDERATIONS

- ✓ Reliable, affordable electricity
- ✓ Skilled, experienced workforce
- ✓ Adequate rail infrastructure
- ✓ Land availability
- ✓ Competitive cost structure

NETWORKING & RESEARCH

<i>Trade association</i>	<i>Website</i>
Heavy Duty Manufacturers Association	www.hdma.org
Motor & Equipment Manufacturers Association	www.mema.org
Original Equipment Suppliers Association	www.oesa.org
Alliance of Automobile Manufacturers	www.autoalliance.org
European Automobile Manufacturers Association	www.acea.be
International Organization of Motor Vehicle Manufacturers	www.oica.net
Association of Equipment Manufacturers	www.aem.org

Source: TIP Strategies research

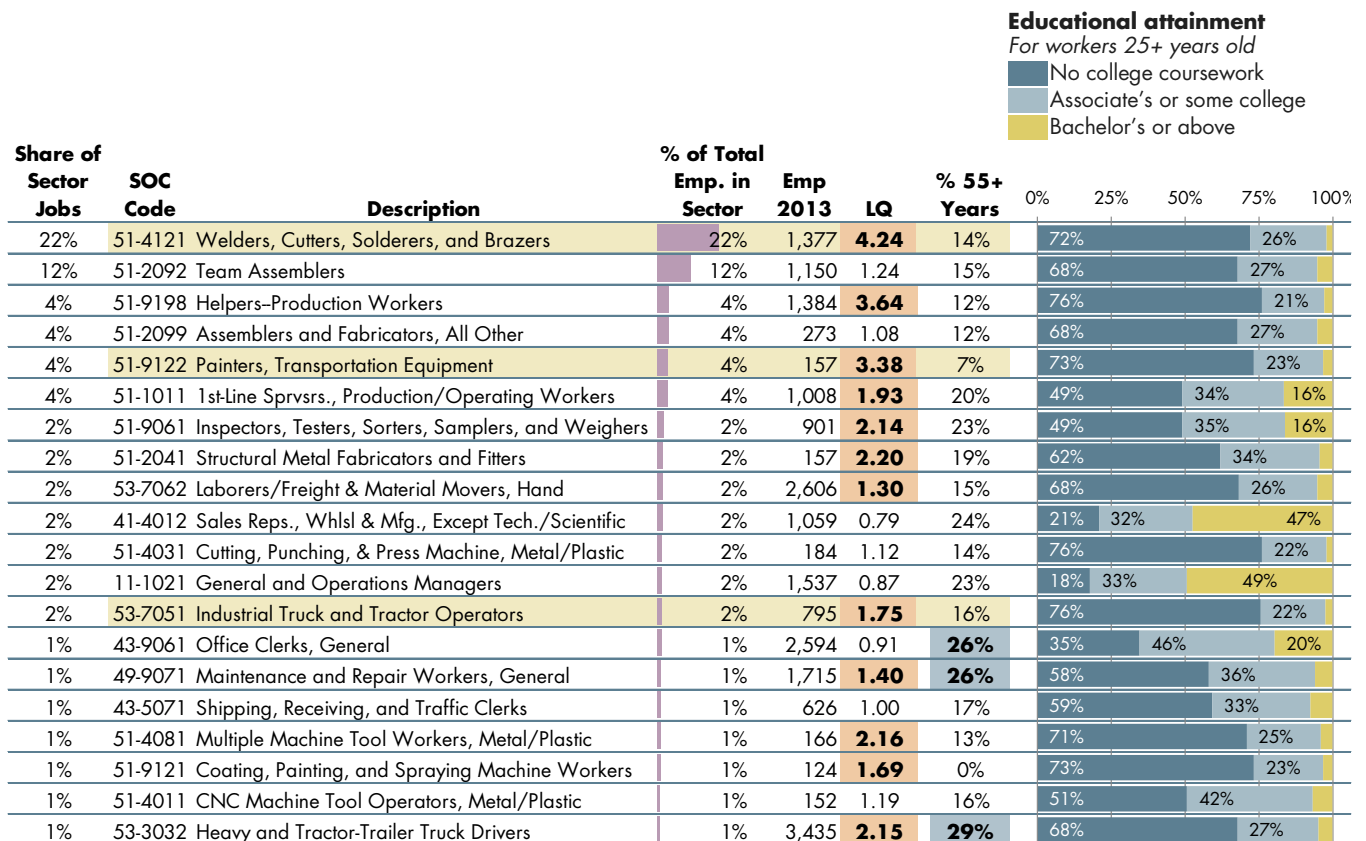
TRANSPORTATION EQUIPMENT (CONT.)

One of the affected occupations, Welders, Cutters, Solderers, and Brazers (SOC 51-4121), is the largest occupation in the sector, typically accounting for roughly two out of five workers on average. The 12-county region is highly concentrated in this sought-after occupation, with more than four times the number of welders than would be expected in a labor market of its size. The relatively high concentration of Painters, Transportation Equipment (SOC 51-9122)—another occupation likely to be affected by reductions in workload at RRAD—is also an asset for this sector.

The majority of workers in this sector do not have any college experience. However, several occupations do require some postsecondary training. In addition to welders (who are typically required to pass certification exams to demonstrate competence with processes and metals), machinists, truck drivers, and forklift operators are examples of occupations that require training beyond high school. Supervisory and administrative workers are also more likely to have completed some college coursework.

FIGURE 31: KEY OCCUPATIONS: TRANSPORTATION EQUIPMENT

SELECTED CHARACTERISTICS OF LEADING OCCUPATIONS (BASED ON SHARE OF TOTAL EMPLOYMENT)



Source: EMSI Complete Employment 2014.2, U.S. Bureau of Labor Statistics Note: Includes all occupations comprising at least 1 percent of employment in the sector. Occupations likely to be affected by layoffs at RRAD are highlighted in gold. Occupations with LQs above 1.25 are noted in orange; those with greater than 25 percent of the workforce aged 55 years and over are in blue.

FIGURE 32: STAFFING SCENARIOS: TRANSPORTATION EQUIPMENT

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Transportation Equipment
 Facility type **Motor Vehicle Metal Stamping**
 NAICS 336370
 Jobs 250

SUPPLY INDICATOR

■ ■ ■ ■ Greater than 75% of current employment
 ■ ■ ■ □ Greater than 50% of current employment
 ■ ■ □ □ Greater than 25% of current employment
 ■ □ □ □ Greater than 10% of current employment
 □ □ □ □ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
51-2092	Team Assemblers	19.7%	49	1,150	□□□□	\$11.28	\$22.64	0.50
51-4041	Machinists	4.2%	11	301	□□□□	\$18.14	\$26.15	0.69
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	3.8%	9	184	□□□□	\$11.70	\$45.36	0.26
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	3.4%	9	901	□□□□	\$13.83	\$25.75	0.54
51-4111	Tool and Die Makers	3.2%	8	53	■□□□	\$18.29	\$20.64	0.89
17-2112	Industrial Engineers	3.1%	8	154	□□□□	\$35.10	\$22.39	1.57
51-1011	First-Line Supervisors of Production and Operating Workers	3.1%	8	1,008	□□□□	\$23.46	\$16.94	1.39
51-4011	CNC Machine Tool Operators, Metal and Plastic	2.9%	7	152	□□□□	\$20.44	\$18.05	1.13
51-2099	Assemblers and Fabricators, All Other	2.5%	6	273	□□□□	\$16.34	\$38.63	0.42
51-4081	Multiple Machine Tool Workers, Metal and Plastic	2.4%	6	166	□□□□	\$14.96	\$16.28	0.92
17-2141	Mechanical Engineers	2.4%	6	134	□□□□	\$32.68	\$12.43	2.63
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	1.9%	5	2,606	□□□□	\$9.90	\$34.50	0.29
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	1.9%	5	72	□□□□	\$15.67	\$45.68	0.34
43-5071	Shipping, Receiving, and Traffic Clerks	1.8%	5	626	□□□□	\$14.23	\$42.55	0.33
51-9198	Helpers—Production Workers	1.7%	4	1,384	□□□□	\$11.13	\$18.55	0.60
51-2022	Electrical and Electronic Equipment Assemblers	1.6%	4	47	□□□□	\$16.75	\$37.92	0.44
49-9041	Industrial Machinery Mechanics	1.7%	4	811	□□□□	\$21.31	\$11.57	1.84
53-7051	Industrial Truck and Tractor Operators	1.5%	4	795	□□□□	\$12.95	\$29.73	0.44
51-2031	Engine and Other Machine Assemblers	1.5%	4	34	■□□□	\$15.58	\$16.74	0.93
51-4121	Welders, Cutters, Solderers, and Brazers	1.5%	4	1,377	□□□□	\$15.50	\$22.98	0.67
49-9071	Maintenance and Repair Workers, General	1.4%	4	1,715	□□□□	\$14.08	\$28.88	0.49
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	1.4%	4	139	□□□□	\$14.77	\$13.96	1.06
11-3051	Industrial Production Managers	1.3%	3	191	□□□□	\$38.23	\$59.92	0.64
11-1021	General and Operations Managers	1.1%	3	1,537	□□□□	\$34.12	\$25.85	1.32
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	0.9%	2	1,059	□□□□	\$21.01	\$13.24	1.59

Source: EMSI Complete Employment 2014.2, TIP Strategies

STAFFING SCENARIOS: TRANSPORTATION EQUIPMENT (CONTINUED)

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Transportation Equipment
 Facility type **Motor Vehicle Body Manufacturing**
 NAICS 336211
 Jobs 250

SUPPLY INDICATOR

■ ■ ■ ■ Greater than 75% of current employment
 ■ ■ ■ □ Greater than 50% of current employment
 ■ ■ □ □ Greater than 25% of current employment
 ■ □ □ □ Greater than 10% of current employment
 □ □ □ □ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
51-2092	Team Assemblers	19.5%	49	1,150	□□□□	\$11.28	\$22.64	0.50
51-4121	Welders, Cutters, Solderers, and Brazers	12.8%	32	1,377	□□□□	\$15.50	\$26.15	0.59
51-2099	Assemblers and Fabricators, All Other	6.9%	17	273	□□□□	\$16.34	\$45.36	0.36
51-1011	First-Line Supervisors of Production/Operating Workers	3.5%	9	1,008	□□□□	\$23.46	\$25.75	0.91
51-9198	Helpers—Production Workers	2.8%	7	1,384	□□□□	\$11.13	\$20.64	0.54
51-9122	Painters, Transportation Equipment	2.6%	6	157	□□□□	\$15.92	\$22.39	0.71
41-4012	Sales Representatives, Wholesale & Manufacturing, Except Tech/Scientific	2.4%	6	1,059	□□□□	\$21.01	\$16.94	1.24
47-2211	Sheet Metal Workers	2.4%	6	86	□□□□	\$14.23	\$18.05	0.79
51-2041	Structural Metal Fabricators and Fitters	2.3%	6	157	□□□□	\$18.35	\$38.63	0.47
53-7062	Laborers/Freight, Stock, & Material Movers, Hand	1.8%	5	2,606	□□□□	\$9.90	\$16.28	0.61
51-4031	Cutting, Punching, & Press Workers, Metal/Plastic	1.8%	4	184	□□□□	\$11.70	\$12.43	0.94
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	1.5%	4	901	□□□□	\$13.83	\$34.50	0.40
51-9121	Coating, Painting, and Spraying Machine Workers	1.2%	3	124	□□□□	\$13.46	\$45.68	0.29
11-1021	General and Operations Managers	1.2%	3	1,537	□□□□	\$34.12	\$42.55	0.80
43-9061	Office Clerks, General	1.2%	3	2,594	□□□□	\$10.52	\$18.55	0.57
51-9199	Production Workers, All Other	1.2%	3	420	□□□□	\$12.63	\$37.92	0.33
17-2112	Industrial Engineers	1.2%	3	154	□□□□	\$35.10	\$11.57	3.03
51-2091	Fiberglass Laminators and Fabricators	1.2%	3	23	■□□□	\$15.10	\$29.73	0.51
43-5071	Shipping, Receiving, and Traffic Clerks	1.2%	3	626	□□□□	\$14.23	\$16.74	0.85
49-9071	Maintenance and Repair Workers, General	1.1%	3	1,715	□□□□	\$14.08	\$22.98	0.61
53-7051	Industrial Truck and Tractor Operators	1.1%	3	795	□□□□	\$12.95	\$28.88	0.45
11-3051	Industrial Production Managers	1.1%	3	191	□□□□	\$38.23	\$13.96	2.74
13-1023	Purchasing Agents, Except Wholesale/Retail/Farm	1.0%	3	187	□□□□	\$34.61	\$59.92	0.58
43-4051	Customer Service Representatives	0.9%	2	1,019	□□□□	\$11.07	\$25.85	0.43
51-4122	Welding, Soldering, and Brazing Machine Workers	0.9%	2	72	□□□□	\$15.67	\$13.24	1.18

Source: EMSI Complete Employment 2014.2, TIP Strategies

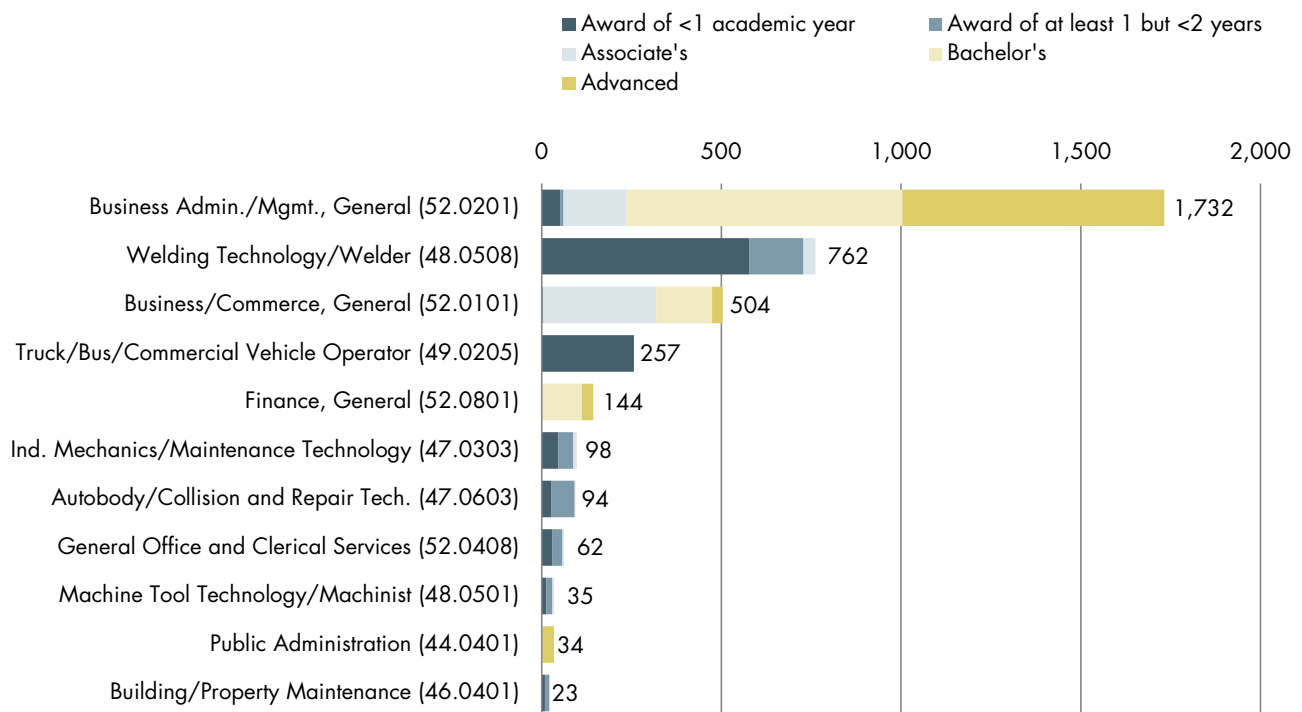
TRANSPORTATION EQUIPMENT (CONT.)

As shown in Figure 5 (page 46), production workers comprise the majority (68 percent) of the workforce in the Transportation sector. Occupations in this classification rarely require high levels of postsecondary education. For those that do require preparation beyond high school, training is not typically taken as part of an academic program. As a result, completions for the sector are limited to a handful of occupations. Coursework in Autobody/Collision and Repair Technology/Technician (CIP 47.0603) can also prepare workers, such as Painters, Transportation Equipment (SOC 51-9122), for transportation-related manufacturing.

While they comprise a relatively small share of the sector’s employment, Maintenance and Repair Workers, General (SOC 49-9071) are an essential part of the workforce. Coursework in fields such as Building/Property Maintenance are aligned with this occupation. Although they did not rise to the top 25 occupations in terms of their share of employment, Industrial Machinery Mechanics (SOC 49-9041) are another essential maintenance occupation associated with manufacturing. Approximately 100 for-credit awards are made in Industrial Mechanics/Maintenance Technology (CIP 47.0303), a program of study that prepares workers for this position, by the schools included in this analysis.

FIGURE 33: COMPLETIONS IN RELATED FIELDS OF STUDY: TRANSPORTATION EQUIPMENT
 THREE-YEAR AVERAGE OF CERTIFICATES AND DEGREES CONFERRED FOR CREDIT, 2010-2012

By award level and Classification of Instructional Programs (CIP) code



Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) surveys.

Note: Data shown was compiled for 48 colleges and universities within 125 miles of Texarkana. For additional details on the analysis, including a complete list of schools, see the Volume 2, Appendix D. IPEDS data include only schools eligible to participate in federal financial aid programs. Figures shown include first and second majors. Cosmetology schools were excluded from this analysis.

FABRICATED METAL

Establishments in this sector transform metal into intermediate or end products (other than machinery, computers and electronics, and metal furniture), or treat metals and metal-formed products fabricated elsewhere. Fabricated Metal products employed roughly 1,400 workers in the 12-county region in 2013, with Bowie and Morris Counties in Texas having the highest number of jobs, followed by Cass (TX) and Miller (AR) Counties.

Other Fabricated Metal Product Manufacturing (NAICS 3329) employed the largest number of workers (more than 700), but experienced job losses over the decade at both the regional and national levels. The largest job gains during this period were seen in Machine Shops (NAICS 3327) and Boiler, Tank, and Shipping Containers Manufacturing (NAICS 3324), which experienced increases at both the national and regional level between 2003 and 2013.

FIGURE 34: FABRICATED METAL

DISTRIBUTION OF JOBS IN 12-COUNTY REGION, 2013

Lowest number of jobs (light) to highest (dark)

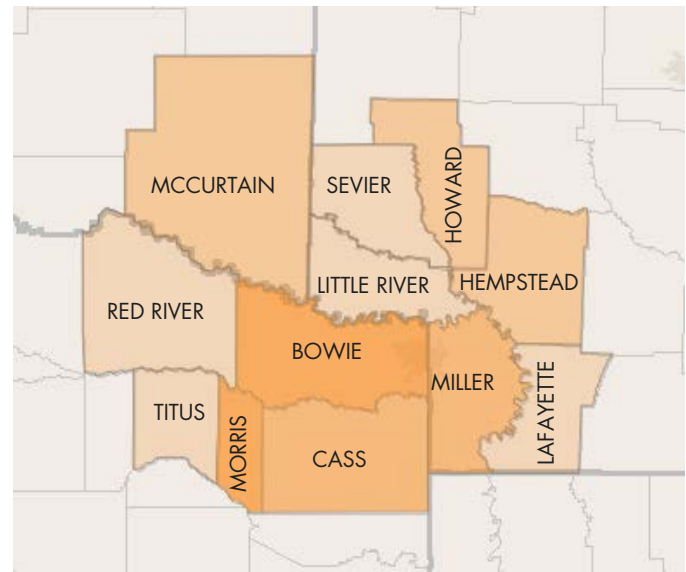


FIGURE 35: REGIONAL EMPLOYMENT OVERVIEW: FABRICATED METAL

SNAPSHOT OF SELECTED INDUSTRIES WITHIN SECTOR

NAICS Code	Description	2013 Jobs	LQ (US = 1.00)	% Chg., 2003-2013		Est.	EPW
				Region	US		
3329	Other Fabricated Metal Product Manufacturing	731	2.98	-36.1% ▼	-2.8% ▼	14	\$53,658
3323	Architectural and Structural Metals Manufacturing	329	1.07	-72.0% ▼	-9.5% ▼	18	\$47,231
3328	Coating, Engraving, Heat Treating, and Allied Activities	235	1.94	183.1% ▲	-5.2% ▼	9	\$42,762
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	228	0.69	39.0% ▲	15.6% ▲	22	\$48,591
3324	Boiler, Tank, and Shipping Container Manufacturing	106	1.25	165.0% ▲	4.7% ▲	2	\$34,301

Source (all figures): EMSI Complete Employment 2014.2 Note: Earnings per worker (EPW) represents total annual earnings (wages, salaries, profits, benefits, and other compensation) divided by the number of jobs in the industry. It is not equivalent to wages paid to individual workers. EPW above the regional average for all industries (\$41,461) is **highlighted**. See Figure 7 (page 46) for a note regarding employment figures.

FABRICATED METAL (CONT.)

OUTLOOK & DRIVING TRENDS

Metal fabrication is closely tied to economic conditions. Two industries in particular—transportation equipment and construction—have traditionally been key drivers of demand. After a sharp downturn, US transportation manufacturing is on the mend. However, even with rising production, competition from alternate materials presents a challenge for metal producers, as these advanced materials continue to replace traditional materials in a range of consumer goods including automobiles.

Recently, a dramatic increase in oil and gas production has been a key driver of demand for US tubular steel products. Supply and demand fundamentals for energy products have shifted dramatically over the past decade as large, newly emerging economies like China have expanded industrial production and driven up world energy prices. When prices reach a certain point, sophisticated drilling and recovery techniques become more feasible. This trend drives demand for piping and US tubular steel products stretching from North Dakota to offshore platforms in the Gulf of Mexico.

Costs in this sector are difficult to control. Along with its effects on energy demand, the growth of industrial production in China has increased worldwide demand for ores, which has driven prices up dramatically in recent years. Companies in the industry are also very vulnerable to fluctuation in energy costs and may be subject to strict emissions controls, which can also impact profitability.

REGIONAL EMPLOYERS

- New Millennium Building Systems
- Texas Tubular Products
- US Steel Tubular Products (Wheeling Machine Products Inc. and Lone Star Tubular Operations)
- A&A Coating Co.
- A & E Mill & Welding Supply Co.
- Texarkana Machine, Inc.
- Delta Fab & Machine
- Scot Industries/Metallurgical Laboratory
- Hawk Installation
- K & B Steel

SITE CONSIDERATIONS

- ✓ Reliable, affordable electricity
- ✓ Skilled, experienced workforce
- ✓ Adequate rail infrastructure
- ✓ Land availability
- ✓ Competitive cost structure

NETWORKING & RESEARCH

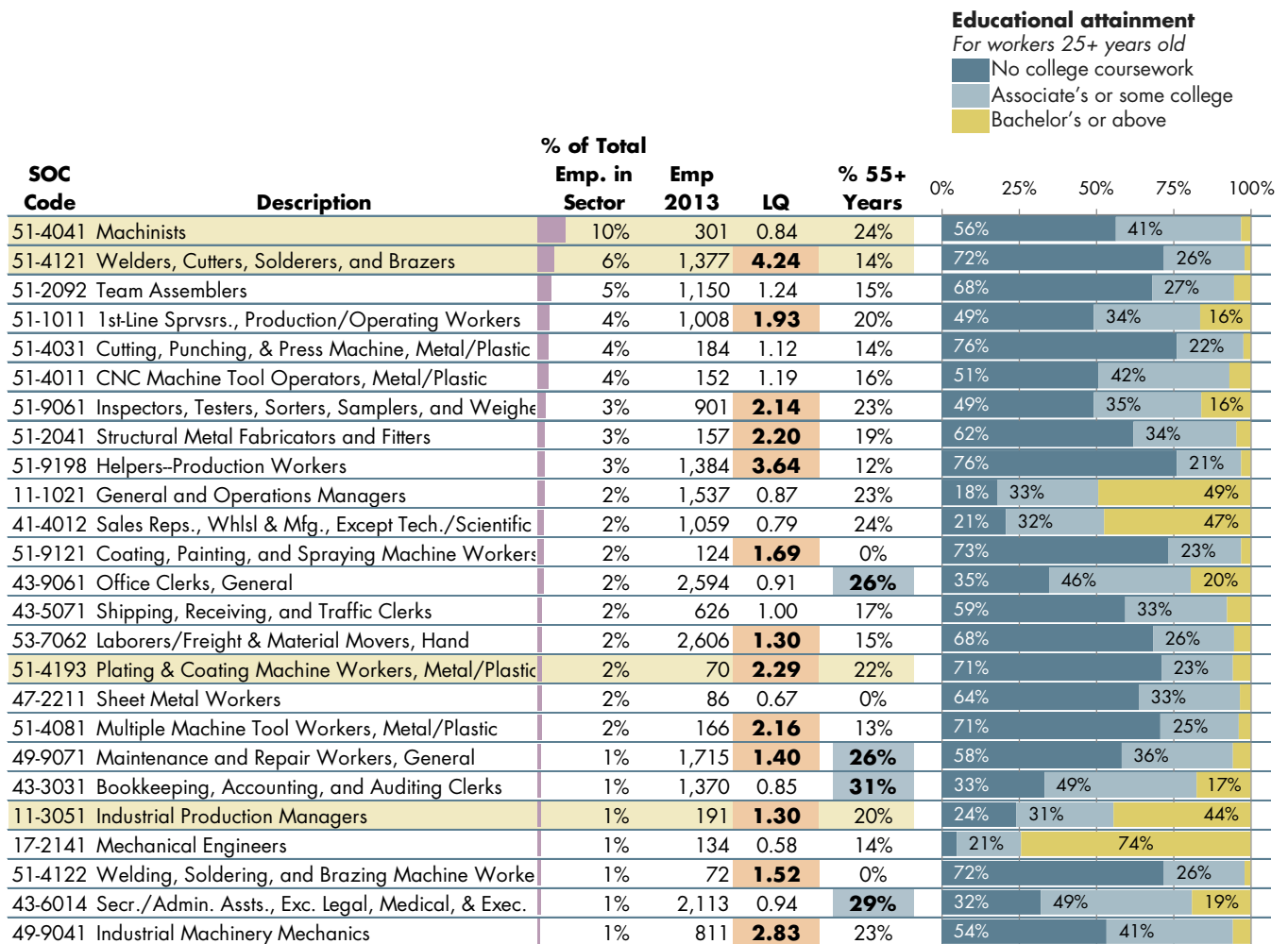
<i>Trade association</i>	<i>Website</i>
National Tooling & Machining Association	www.ntma.org
Precision Machined Products Association	www.pmpa.org
Steel Plate Fabricators Association	www.steeltank.com
Fabricators & Manufacturers Association, International	www.fmanet.org
Precision Metalforming Association	www.pma.org
American Welding Society	www.aws.org

Source: TIP Strategies research

FABRICATED METAL (CONT.)

One in ten workers in the fabricated metal products sector is a Machinist (SOC 51-4041). Of the four affected occupations that are typically employed in the sector, this position is the only one which has a below-average location quotient (LQ), suggesting the occupation is less prevalent in the region than would be expected based on national averages. Machinists are also more likely to be older than the other three affected occupations, with 24 percent of the workforce age 55 years and older. Laborers and Freight, Stock, and Material Movers, Hand (SOC 53-7062) and Office Clerks, General (SOC 43-9061) are the largest occupations in terms of the number of jobs they represent in the region, with each accounting for roughly 2,500 jobs. In addition to General and Operations Managers (SOC 11-1021) and Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (SOC 41-4012), four-year degrees or above are the most common level of educational attainment for Industrial Production Managers (SOC 11-3051) and Mechanical Engineers (SOC 17-2141).

FIGURE 36: KEY OCCUPATIONS: FABRICATED METAL
 SELECTED CHARACTERISTICS OF LEADING OCCUPATIONS (BASED ON SHARE OF TOTAL EMPLOYMENT)



Source: EMSI Complete Employment 2014.2, U.S. Bureau of Labor Statistics Note: Includes all occupations comprising at least 1 percent of employment in the sector. Occupations likely to be affected by layoffs at RRAD are highlighted in gold. Occupations with LQs above 1.25 are noted in orange; those with greater than 25 percent of the workforce aged 55 years and over are in blue.

FIGURE 37: STAFFING SCENARIOS: FABRICATED METAL

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Fabricated metal
 Facility type **Fabricated Pipe and Pipe Fitting Mfg.**
 NAICS 332996
 Jobs 250

SUPPLY INDICATOR

■ ■ ■ ■ Greater than 75% of current employment
 ■ ■ ■ □ Greater than 50% of current employment
 ■ ■ □ □ Greater than 25% of current employment
 ■ □ □ □ Greater than 10% of current employment
 □ □ □ □ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
51-2092	Team Assemblers	8.6%	21	1,150	□□□□	\$11.28	\$13.32	0.85
51-4041	Machinists	6.1%	15	301	□□□□	\$18.14	\$18.94	0.96
51-4121	Welders, Cutters, Solderers, and Brazers	5.1%	13	1,377	□□□□	\$15.50	\$17.37	0.89
51-4011	CNC Machine Tool Operators, Metal and Plastic	4.7%	12	152	□□□□	\$20.44	\$17.10	1.20
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	4.4%	11	901	□□□□	\$13.83	\$16.74	0.83
51-1011	First-Line Supervisors of Production and Operating Workers	4.0%	10	1,008	□□□□	\$23.46	\$25.75	0.91
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	2.9%	7	184	□□□□	\$11.70	\$14.27	0.82
17-2141	Mechanical Engineers	2.3%	6	134	□□□□	\$32.68	\$38.63	0.85
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Workers, Metal and Plastic	2.2%	5	52	■□□□	\$13.43	\$15.20	0.88
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	2.2%	5	1,059	□□□□	\$21.01	\$25.85	0.81
43-5071	Shipping, Receiving, and Traffic Clerks	2.0%	5	626	□□□□	\$14.23	\$13.96	1.02
53-7062	Laborers/Freight, Stock, & Material Movers, Hand	1.9%	5	2,606	□□□□	\$9.90	\$11.57	0.86
11-1021	General and Operations Managers	1.8%	5	1,537	□□□□	\$34.12	\$45.68	0.75
51-4081	Multiple Machine Tool Workers, Metal and Plastic	1.8%	4	166	□□□□	\$14.96	\$16.32	0.92
17-2112	Industrial Engineers	1.8%	4	154	□□□□	\$35.10	\$37.92	0.93
51-9198	Helpers-Production Workers	1.8%	4	1,384	□□□□	\$11.13	\$10.96	1.02
51-2041	Structural Metal Fabricators and Fitters	1.7%	4	157	□□□□	\$18.35	\$17.19	1.07
49-9071	Maintenance and Repair Workers, General	1.3%	3	1,715	□□□□	\$14.08	\$16.94	0.83
43-9061	Office Clerks, General	1.2%	3	2,594	□□□□	\$10.52	\$13.24	0.79
11-3051	Industrial Production Managers	1.2%	3	191	□□□□	\$38.23	\$42.55	0.90
43-5061	Production, Planning, and Expediting Clerks	1.2%	3	392	□□□□	\$19.55	\$21.10	0.93
43-4051	Customer Service Representatives	1.1%	3	1,019	□□□□	\$11.07	\$14.73	0.75
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	1.1%	3	187	□□□□	\$34.61	\$28.32	1.22
51-2099	Assemblers and Fabricators, All Other	1.1%	3	273	□□□□	\$16.34	\$12.54	1.30
51-9199	Production Workers, All Other	1.1%	3	420	□□□□	\$12.63	\$13.16	0.96

Source: EMSI Complete Employment 2014.2, TIP Strategies

STAFFING SCENARIOS: FABRICATED METAL (CONTINUED)

ANALYSIS OF CAPACITY TO MEET LABOR NEEDS OF HYPOTHETICAL INVESTMENT IN TARGET SECTOR

STAFFING SCENARIO

Target industry Fabricated metal
 Facility type **Metal Tank (Heavy Gauge) Manufacturing**
 NAICS 332420
 Jobs 250

SUPPLY INDICATOR

■ ■ ■ ■ Greater than 75% of current employment
 ■ ■ ■ □ Greater than 50% of current employment
 ■ ■ □ □ Greater than 25% of current employment
 ■ □ □ □ Greater than 10% of current employment
 □ □ □ □ Less than or equal to 10% of current employment

SOC Code	Description	% of Total Jobs in Industry (2014)	Est. Potential Demand Created	Current Supply	Indicator	Median Hourly Wage		
						Region	US	Ratio (US=1.00)
51-4121	Welders, Cutters, Solderers, and Brazers	15.6%	39	1,377	□□□□	\$15.50	\$17.37	0.89
51-2092	Team Assemblers	5.2%	13	1,150	□□□□	\$11.28	\$13.32	0.85
51-1011	First-Line Supervisors of Production and Operating Workers	4.0%	10	1,008	□□□□	\$23.46	\$25.75	0.91
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	3.3%	8	184	□□□□	\$11.70	\$14.27	0.82
51-9198	Helpers—Production Workers	3.3%	8	1,384	□□□□	\$11.13	\$10.96	1.02
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	3.2%	8	124	□□□□	\$13.46	\$14.64	0.92
49-9041	Industrial Machinery Mechanics	3.2%	8	811	□□□□	\$21.31	\$22.39	0.95
51-2041	Structural Metal Fabricators and Fitters	3.0%	7	157	□□□□	\$18.35	\$17.19	1.07
51-4041	Machinists	2.6%	7	301	□□□□	\$18.14	\$18.94	0.96
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2.5%	6	901	□□□□	\$13.83	\$16.74	0.83
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	2.4%	6	72	□□□□	\$15.67	\$16.65	0.94
49-9071	Maintenance and Repair Workers, General	2.1%	5	1,715	□□□□	\$14.08	\$16.94	0.83
47-2011	Boilermakers	2.1%	5	11	■ ■ ■ □	\$35.67	\$27.19	1.31
41-4012	Sales Reps., Wholesale and Manufacturing, Except Technical and Scientific Products	2.0%	5	1,059	□□□□	\$21.01	\$25.85	0.81
53-7051	Industrial Truck and Tractor Operators	1.9%	5	795	□□□□	\$12.95	\$14.54	0.89
17-2141	Mechanical Engineers	1.9%	5	134	□□□□	\$32.68	\$38.63	0.85
53-7062	Laborers/Freight, Stock, & Material Movers, Hand	1.8%	5	2,606	□□□□	\$9.90	\$11.57	0.86
11-1021	General and Operations Managers	1.8%	4	1,537	□□□□	\$34.12	\$45.68	0.75
51-9111	Packaging and Filling Machine Workers	1.6%	4	616	□□□□	\$11.20	\$12.43	0.90
43-5071	Shipping, Receiving, and Traffic Clerks	1.4%	4	626	□□□□	\$14.23	\$13.96	1.02
17-3013	Mechanical Drafters	1.4%	3	28	■ □ □ □	\$21.01	\$24.19	0.87
51-4011	CNC Machine Tool Operators, Metal and Plastic	1.4%	3	152	□□□□	\$20.44	\$17.10	1.20
11-3051	Industrial Production Managers	1.2%	3	191	□□□□	\$38.23	\$42.55	0.90
43-9061	Office Clerks, General	1.2%	3	2,594	□□□□	\$10.52	\$13.24	0.79
47-2211	Sheet Metal Workers	1.1%	3	86	□□□□	\$14.23	\$20.55	0.69

Source: EMSI Complete Employment 2014.2, TIP Strategies

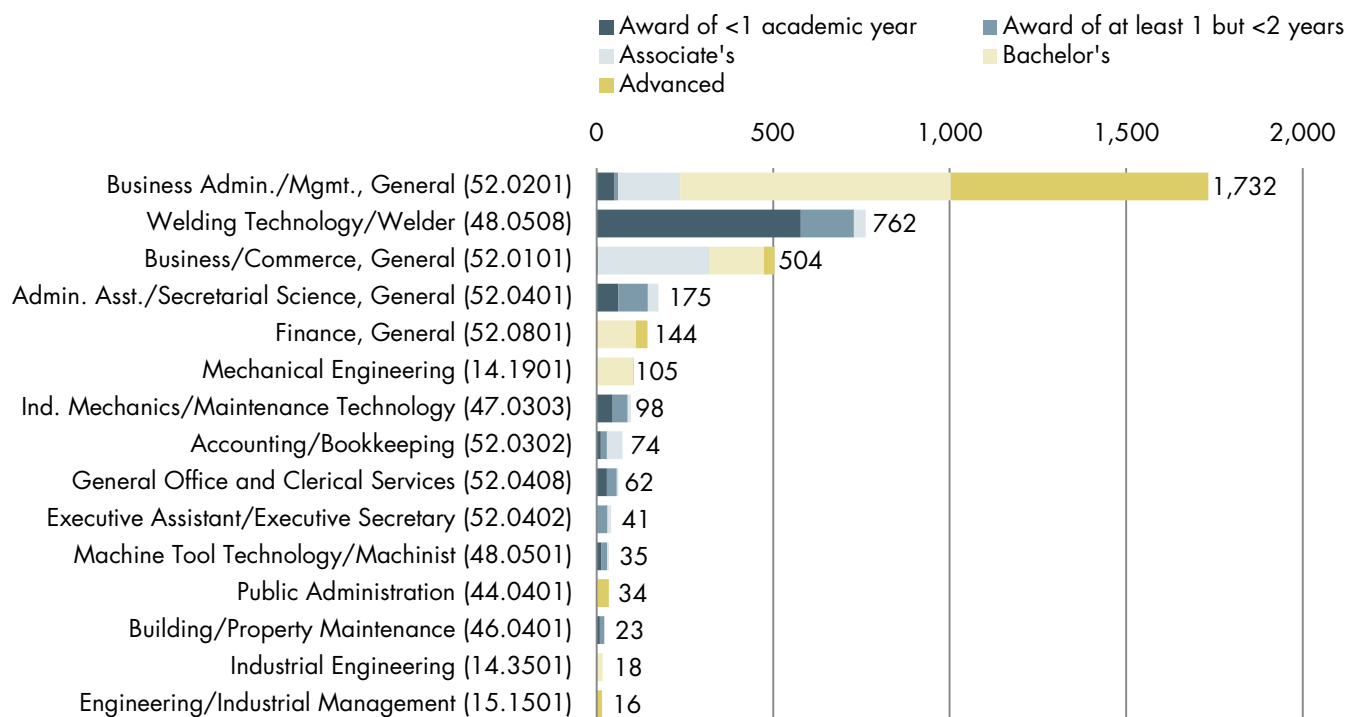
FABRICATED METAL (CONT.)

As noted previously, Machinists (SOC 51-4041) are the largest occupation found within the Machinery sector. Like welding-related training, coursework in machining is not necessarily taken as part of an academic degree program. As a result, completions in related fields of study, such as Machine Tool Technology/Machinist (CIP 48.0501) and Machine Tool Technology/Machinist (CIP 48.0501—not shown due to the small number of completions reported during the years analyzed), are not likely to reflect the total number of workers that complete training in the field in a given year. These fields of study also help prepare workers in the following key occupations in the Fabricated Metal sector: Structural Metal Fabricators and Fitters (SOC 51-2041); Computer-Controlled (CNC) Machine Tool Operators, Metal and Plastic (SOC 51-4011); Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic (SOC 51-4033); Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic (SOC 51-4031); Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic (SOC 51-4034); and Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic (SOC 51-4081). Engineering skills are also essential in the production of machinery and equipment, as reflected by the inclusion of coursework in Mechanical Engineering (CIP 14.1901); Industrial Engineering (CIP 14.3501); and Engineering/Industrial Management (CIP 15.1501).

FIGURE 38: COMPLETIONS IN RELATED FIELDS OF STUDY: FABRICATED METAL

THREE-YEAR AVERAGE OF CERTIFICATES AND DEGREES CONFERRED FOR CREDIT, 2010-2012

By award level and Classification of Instructional Programs (CIP) code



Source: National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS) surveys.

Note: Data shown was compiled for 48 colleges and universities within 125 miles of Texarkana. For additional details on the analysis, including a complete list of schools, see the Volume 2, Appendix D. IPEDS data include only schools eligible to participate in federal financial aid programs. Figures shown include first and second majors. Cosmetology schools were excluded from this analysis.