

# CURRICULUM NEEDS ASSESSMENT

## Table of Contents

<b>I. Introduction .....</b>	<b>2</b>
<b>II. The New Economy Workforce .....</b>	<b>3</b>
A Vision for West Central Texas .....	5
<b>III. The Abilene Workforce System .....</b>	<b>8</b>
Existing Institutional Infrastructure .....	8
Gaps and Constraining Features.....	9
Overall Assessment.....	11
Challenges.....	12
Regional Assets.....	22
Conclusions: Summary of Findings .....	29
<b>IV. The Action Plan .....</b>	<b>33</b>
<b>V. Regional Summaries .....</b>	<b>40</b>
<b>VI. The Appendix.....</b>	<b>49</b>

# CURRICULUM NEEDS ASSESSMENT

## I. Introduction

This report aims to assist Abilene and the West Central Texas region's efforts to transition into the new, technology-oriented economy by addressing the question, who does Abilene need to be to compete in this complex, global marketplace. Determining curriculum needs for Abilene that will enable the community to both prepare and retain its workforce may be the greatest challenge and opportunity in this entire assignment, insofar as:

- It presupposes the attractiveness of the Abilene area to a wide range of very different technology sectors (see RFP)
- It is likely the topical lynchpin for all of Abilene's proposed efforts to develop along a technology-oriented trajectory.

To carry out this task, the report is structured as follows. Section one provides an overview of what the new economy workforce looks like. Given that picture, the section then develops a vision for the Abilene economy that will be used as a benchmark to build an action plan. Once the vision is set, the second section of this report assesses the current status of the Abilene training and education system, outlining its assets and the challenges it must face. The third section offers an action plan to build on these assets and overcome these challenges to foster economic transformation. The last section summarizes particular strengths and challenges of each of the seven sub-regions.

## II. The New Economy Workforce

As we transition into the new economy, we do not know what industries and skills will be relevant in the future.

The workforce for this new, technology-oriented economy must consist of academically prepared, multi-skilled, flexible creative individuals who are eager and able to learn new skills and expect to do so throughout their lifetime. All students must be literate in math, English, science and technology with strong critical thinking, team working, problem solving, and social and leadership skills. These are baseline skills for all individuals in the emerging workforce.

We are attempting to educate students today so that they will be ready to solve future problems that have yet been identified using technologies not yet invented based on scientific knowledge not yet discovered.

Joseph Lajowski  
University of Texas at Austin

Although we do not know the specific skills required for the future, we do know that the workforce needed to support economic vitality and the continuous innovation required of competitive technology-oriented industries is highly diversified and depends upon the following occupational categories<sup>1</sup>:

### *Professionals*

Professionals design, develop and create (e.g. engineers, scientists, commercial artists). A B.A. is the minimal training and often higher levels of education are required. These individuals are trained and recruited from national markets but having the ability to grow them locally provides a community with a large advantage, especially for start-up and new business activity. Moreover, having research professionals, placed in universities, Federal labs or other research institutions, as an extended part of an industry's creative workforce is a recognized asset for thriving technology clusters, and may act as a lure for new companies. Since competition for this labor market is national and increasingly international in scale, places need to compete to attract and retain workers in terms of quality of place and quality of life. This is one of the West Central Texas Region's biggest weaknesses.

### *Technicians*

Certified technicians produce, modify, repair, and maintain. This workforce receives education and training post high school but do not necessarily need a four year degree. They will, however, require regular training and certification to keep their skills up to date throughout the course of their career. This workforce is predominantly trained and

---

<sup>1</sup> This is an adaptation of the categories established by Rick Stephens, "21<sup>st</sup> Century Workforce Development: New Perspectives and Paradigms", The Boeing Company, DVD.

recruited from the regional labor market, although in times of shortage recruiters may expand that search area.

### *Management*

When assessing workforce needs for an industry, many evaluations overlook the need for skilled management that understands the requirements of innovative industries. Fast-growth sectors and technology start-up activity require different management skills than in a more traditional business. Finding good management locally taxes many communities, even those with upper tier university training. Having a responsive university can assist in this area. For example, Case Western Reserve University's Weatherhead School of Management recently initiated an MBA in bioscience entrepreneurship, given the industry's lack of managers' with both business and science expertise.

### *Business Service Professionals*

In areas where technology industry is thriving, business service professionals have skills and knowledge relevant to servicing technology industries (lawyers, accountants, bankers, specialized financing). For example, there will be lawyers with expertise in patent and copyright laws, specific to the industry at hand. While it is more useful to have this expertise locally based, this knowledge can be obtained through state or national markets as new industries begin to emerge. The proximity of West Central Texas to the Dallas/Ft. Worth Metroplex can provide basic access to these skills initially.

### *Population-at-large*

Overall the community population, even those in entry level jobs, will need to be well skilled and savvy at the technological and global scale. They will have strong science and math skills, and be comfortable approaching the paradoxes that technology and a globalizing economy create for our every day lives. And they must be skilled. To compete in the labor market and earn family sustaining wages, individuals must have at the bare minimum a High School degree, and in truth, that will not be enough in today's technology-oriented economy. Increasing wage inequality in the economy is determined predominantly by skill level acquisition. According to a 2001 Council of Competitiveness study, wage inequality has grown considerably between late 70s and the late 90s. The average college graduate earned 38 percent more than the average high school graduate in 1979. In 1998, that differential had jumped to 71 percent.

Lower-skilled individuals are more vulnerable in the face of an economic downturn and are more likely to live in poverty. Research by the Employment Policy Foundation showed that, during the recent economic slowdown, September 2000 through October 2001, job losses most heavily effected individuals with no post-secondary training while 1.2 million jobs were created for individuals with post-secondary training. Since September 11, 2001, which fueled the economic downturn, the unemployment rate for individuals with a college degree or higher was 2.1 percent, compared to a 9.8 percent

rate for individuals with less than a high school diploma. Persons with vocational degrees and only some post secondary course work faced unemployment rates of 3.7 percent and 4.6 percent. These figures demonstrate that individuals require degrees and certification post High School if they are to compete effectively in the labor market. This means that high academic achievement at the High School level is a prerequisite for all students, no matter what pathway they follow. Ensuring that no student is left behind is the biggest challenge all communities face and the first and primary goal for a community wanting to position itself competitively in this new economy.

### **A Vision for West Central Texas**

Given the demands of the new economy, and the region's ambition to transform itself to compete in this new market place, what does the region need to do? In this section, we lay out a long term vision of what the education and training system would need to look like. Its design emerges from two sources: an assessment of what is working in other communities that are making substantial strides in modernizing their workforce and training system and an understanding of what needs to be done given the transformation of the economy. For some of the objectives identified, there will be no comprehensive role model to follow, as many communities are grappling with these challenges. This is not a deterrent. Some of the most vital regions in the country today, such as Austin, were built by a vision of what could be, and their willingness to take the leadership to forge a new path. It does take patience and the will to undertake fundamental cultural transformation. It can be done. The Pittsburgh region stands as an example of what it takes to move from dependency on a single, traditional industry to a more diversified, more dynamic competitive city. And it is still working on it.

Below are goals for the region, to build a competitive system that will build up its human capital infrastructure. Some of them may seem obvious, and many are certainly not new and have been part of the national debate for awhile, but the region must be galvanized to support these goals. Overall, the education and training system must be strong at the K-12 level, providing all students with academic, leadership and technical skills, and finding innovative ways to ensure students do not fall through the cracks. The institutions at higher levels must be responsive and flexible, regularly adapting curriculum, developing new methods and approaches of skill acquisition and certification, and interacting regularly with the wider community, especially the business community.

#### *K-12*

To reiterate, all students must graduate high school with strong academic, leadership and technical skills. They must have a solid understanding of career planning in the new economy based on the principles of lifelong learning. Specifically they must recognize and accept paths for advanced skill attainment, even if they plan to enter the labor market initially.

Academic and technical training must be fully integrated and not viewed as separate pathways leading to distinct opportunity sets. All students must leave with academic and

technical skills. The separation of the two historically has given technical skills an inferior position. In a technology based world, all students need some level of comfort and familiarity in both worlds.

### *All Education and Training Institutions*

Entrepreneurship or leadership skills need to be embedded into all education and curricula activities available. The core skills of the future are the ability to network, take initiative, build contacts, identify pathways, plan financially and find assistance to advance. We need to educate children, teens and adults on how to take initiative, responsibility and get things done, whether or not they ever start a business. Leadership skills serve the individual, the business and the community.

### *The Workforce and Training System*

The region must develop and clearly articulate pathways connecting and reconnecting individuals and businesses into training opportunities, even if some of those opportunities, such as four year curricula (e.g. engineering), are not regional. Diverse local pathways need to be diagrammed and built into the education system at all levels. For example, currently the region cannot train engineers but engineering paths are available to students. Abilene ISD has an engineering pathway for its students negotiated with Texas Tech.

Looking at the Abilene economy and workforce system, neither jobs nor many curricula to train individuals for jobs in technology-oriented industries are available. Thus, the region is, and will continue in the short to medium term, to educate its population to leave for better opportunities elsewhere. The region should develop a tracking capacity to find individuals who leave the region for advanced skill and education training or job opportunities. As the region's economy improves, that population is an important market to re-attract back. This does not have to be considered a dead end but an opportunity. A good model is the country of Ireland, which actively marketed the quality of its students within the European Union during hard economic times. As the Irish job market got stronger, students returned. Their strong feelings of attachment to their home made it easy for Ireland to re-attract its talented workforce once better jobs developed. A number of U.S. communities have used High School and University alumni networks as workforce recruiting tools.

Until the region creates more opportunities with higher wages and aggressively enhances the quality of place, young, talented workers will continue to leave the region. Economic success will be based not only on transforming the economy but transforming the quality of place currently available in the region. The region must invest resources to enhance and diversify the quality of place to attract, retain and re-attract the workforce. Quality of life is not one thing, as most people think, but the ability for different types of people to enjoy a range of options, often at different life stages. In others words, being family friendly with short commute times is not enough. It appeals only to families with school age children and retirees. A place needs to hold an attraction for youth, single

professionals, artists and engineers, young families, more mature families and senior citizens, with diverse interests. Choice is the defining word of the new economy. In the new economy, a competitive place offers a range of choices to meet the social, economic and cultural aspirations of diverse types of residents. The region must grapple with the question: Are they are ready to be a bit faster paced, a little more colorful, and more diverse?

The region will have to find a way to create combined business and social safety nets. Some of the key obstacles prohibiting access to training and labor market participation are available and affordable day care, health care and transportation. According to interviews, the inability of smaller businesses to provide benefits makes the region unattractive to many workers. The region will need to look at how the business, political and community sectors can come together to provide the range of these benefits to all regional residents. These do not have to be public programs, but may include ways to help businesses cooperatively provide better health care and child care benefits. Moreover, finding solutions may work as incentives for start-ups and innovative small companies that compete for a workforce with larger companies.

To achieve all the above goals, the region will need to achieve unprecedented cooperation among its political and education institutions. The goal is a seamless, fully networked system, allowing multiple entry and exit points for individuals and businesses. More than that, only long term, multi-institutional cooperation can achieve the cultural transformation required to compete in the new economy. Institutions that were created and grown around traditional industries need time to understand their new roles and responsibilities required to promote technology industries.

The region has a mixed history when it comes to cooperation. Some of the education institutions work well together. Many of the political institutions do not. The region may have to start slowly and partially, by identifying common goals and timetables and starting with the easier projects that can be used to build trust, community support, and institutional frameworks that support cooperation.

The media needs to be included as a key stakeholder in all of these relationships. To build a new culture and a new image, the media's reporting and editorial decisions need to reflect and promote the region's new character. For example, most media in dynamic economic regions highlight the importance of technology and the technology industry and spotlight budding entrepreneurs on a regular basis. The media creates the feel of the place, and needs to reflect the feel the region wants to project.

### **III. The Abilene Workforce System**

This section will:

- Outline the existing institutional infrastructure of the regional workforce system;
- Identify characteristics of the regional economy and infrastructure gaps which sets limits on the capacities of the workforce system; and
- Evaluate the challenges to and assets for regional economic renewal related to the workforce system.

#### **Existing Institutional Infrastructure**

Overall, the region has a relatively rich albeit generic educational infrastructure. It has the capacity to build a tech savvy population, but has substantial curriculum and system-level gaps vis-à-vis building a strong technology base. It also faces looming challenges to its workforce and educational system that it will have to manage.

The following structures comprise the region's workforce system.

#### *Four Universities and a Satellite Campus*

- Abilene Christian University (ACU)
- Hardin-Simmons University (HSU)
- Howard Payne University (HPU)
- McMurray University
- Texas Tech has just added a satellite MS program in Computer Science Engineering. It is highly focused which allows for the development of a niche specialization, providing the initial groundwork for the emergence of a regional center of excellence.

According to our interviews, regional High Schools also serve as feeder schools for the following universities and many ISDs or 2-years may have articulation or dual enrollment agreements with them:

- Texas Tech
- Texas A&M
- University of Texas (multiple campuses)
- Mid Western
- Angelo State
- Tarelton
- Northwestern (Wichita Falls)

#### *Four Technical and Community Colleges*

- Cisco College (2 campuses)
- Ranger College

- Texas State Technical College (TSTC, 4 campuses)
- Western Texas College (WTC)

Other two-year schools (and this is not an exhaustive list) that recruit from the region are:

- Central Texas College
- Howard
- Vernon
- South Plains

The region encompasses all the school districts in Region 14 and several in Region 15.

There are very few private training institutions available locally, and do not merit discussion. Of interest, metroplex based national training agents, such as DeVry, advertise on local television, suggesting that they may be able to attract young people to the Metroplex for training opportunities, especially those that seem more directly connected to an active job market. How successful these companies recruitment strategies are, however, is unknown.

In addition, some areas have community based organizations that help get youth at risk either into jobs or back onto an academic track. While the existing organizations appear effective, there are very few of them. The two identified through the interviews are Just People in Abilene and Scurry County Youth Outreach in Snyder, which has just gotten up and running.

Finally, Region 14, the center serving the education community for most of West Central Texas, provides a focus for cooperation among the education institutions. For example, the West Texas Telecomm Cooperative, run from Region 14 and includes all school, provides wide area infrastructure for networking.

### **Gaps and Constraining Features**

There are a number of current economic realities that limit the capacities and direction the workforce system takes. To improve the ability of the regional system to meet economic need, these will have to be addressed independently.

#### *Existing industries and occupational choices*

The lack of knowledge jobs in the regional economy encourages flight among young talent and influences the training choices of current residents. Most of the available jobs and training spaces, therefore, are not related to technology industries; hence many training options and part-time work/internship/apprenticeship options are unrelated. It makes little sense for the two year colleges, which serve the region, to train for jobs that are not available locally. Additionally, the community colleges are predominantly transition schools, where the students come for academic training to move on to another education or training institution.

### *Limited quality of life choices*

Although the existing quality of life is desirable by some, it is not attractive to younger talent. Obtaining a good quality of life is about offering choices, not one definition of quality that applies to all people. The lack of amenities and varied social and economic opportunities limits the city's attractiveness to many layers of talented workers and supports flight to the Metroplex.

### *Conservative perceptions of the region*

Abilene has a conservative reputation that may be a deterrent for talented and creative workers who prefer what they would consider a more tolerant environment. A community can still maintain a highly ethical environment without a narrower, conservative outlook. Moreover, entrepreneurship thrives in local cultures that support risk and innovation, characteristics not associated with a conservative culture. For Abilene to diversify its economy, building up its entrepreneurship support structure will be a core activity.

### *Missions of the local universities*

The universities have a national orientation and a responsibility to the churches they represent. While a service orientation can help serve the community, it will only be one of many competing priorities. Their religious and national orientations may set limits, however, on how they can help and how easily they can and will adapt their curricula to meet regional economic needs.

### *Research capabilities of the local universities*

The universities are predominantly teaching universities. The region, therefore, cannot benefit from the reputation of local researchers and the commercialization opportunities of science and technology research. Even though ACU does have an ambition to achieve recognition as a Carnegie MA I Institution, this focus is a fairly new one, may take time to build, and is still dependent upon individual faculty interest as opposed to having a critical mass of researchers in a particular specialty. Moreover, the program remains fairly small and focused on humanities and social sciences.

Ph.D. options in the region are highly limited and focus predominantly on Ministry training. The recent development of Texas Tech offers a ray of hope for enhancing this capacity but it is still in its infancy at the moment.

### *Limited entrepreneurship culture and education*

Although some observers have noted that entrepreneurship does exist in Abilene, it is not apparent and minimal infrastructure is available to support start-up activity. Finding ways

to help talented people to start their own businesses is another way to keep local talent and build a more diversified job base.

### *Underemployment*

Within the region, many of the job replacements after the decline of the more traditional industries do not provide the same living standards as those lost. According to interviews, a good proportion of the workers laid off are older and only looking to survive through retirement. They would prefer to not to move or study seriously. This situation is worse in the more rural areas.

### *Low wages and lack of benefits*

Small businesses, which provide a significant proportion of employment, are unable to provide adequate benefits. Part of this is due the tough economy that strains their financial situation to the limit. Part of this is due to old style management approaches that are not competitive in the global market. Part of this is due to the fact that local economic development organizations may cater too much to the concerns of existing businesses. Where retention must be a core activity, diversification may present some uncomfortable challenges. That means new companies that threaten to steal local workers. Competition for workers not only increases wages and benefits, it will drive new curricula to meet that demand, and may stimulate innovation as workers pass ideas and new approaches among businesses. Competition for workers also attracts workers. Talented professionals and the technology workforce are highly mobile and move to areas where there are plentiful opportunities. In other words, they are attracted to a region where they can lose their job and easily move to another in their field. Competitive, technology-oriented businesses, in fact, look for a large, dynamic labor market when relocating.

### *Declining school resources and populations*

The regional ISD's all face severe budget cutting, which threatens their ability to meet the increasing academic standards required of schools. This will be made worse by declining school populations in the region. Declining budgets are pushing schools to limit or eliminate vocational training that is expensive to maintain as their technological training requirements increase. Even more traditional career choices, such as automotive mechanics, require more and more technological equipment to stay relevant. The threat of the end of the TIF grant also will challenge the abilities of schools to maintain their current level of technology infrastructure and capabilities.

## **Overall Assessment**

This section evaluates the challenges to and assets for regional economic renewal related to the workforce system and available curricula.

Core hurdles that emerged were:

- Limited connections between labor supply and demand
- Limited science and engineering curricula with connective career pathways
- Predominance of students in the humanities fields
- Non-academic track students falling through the cracks
- Workforce development recruitment difficulties on the ground
- Lack of the amenities to attract and retain young talent
- Lack of supportive services to overcome obstacles that prevent certain populations from accessing training or work

Assets include:

- Adaptive training agencies
- Emerging new capacities
- Willingness to cooperate and emerging models of cooperation
- Growing enrollment in regional 2 year colleges
- Engaged Student Population
- Engaged Civic Population
- Good K-12 Academic Education
- Local best practice models addressing pressing problems

Each of these elements will be examined individually.

## **Challenges**

### *Limited Connections between Supply and Demand*

When assessing the quality of the current workforce system, we must look at the demand side (skills required by businesses that keep it competitive) and the supply side (preparing talent to enter the labor market). While this sounds like an easy and obvious match, coordinating these two sides to the system is challenging communities across the country. This lack of coordination was one of the stimuli for implementing the Workforce Investment Act of 1998.

Overall, the region's education and training system is strongly supply driven and caters to the wants of the students, a situation intensified by the current state of the economy. Outlined below, the report discusses how well different educational institutions help meet local demand.

### *Four -year schools*

The four year universities are all private, and see their students, many of which are non-Texan, as their main constituency. They educate their students for a national market. The curricula they offer that directly feed into local job opportunities reflect current economic opportunities (teaching, accounting, nursing) and are unrelated to wealth generating

economic sectors (see below for more details). While the universities provide generally strong business curricula, and there is evidence that ACU is getting very aggressive in this area, there is no relationship between that curricula available and the management needs of existing businesses. In Brownwood, for example, businesses have noted a need for industrial management training, which Howard Payne does not provide. Brownwood businesses receive this training from on-line sources.

Moreover, the connections between university job development efforts and the regional economy are weak. According to interviews, the university job placement offices lack sufficient resources and are overburdened with too many competing responsibilities to be effective placement agents within the local economy. Given the weak connections, most job recruiters who come to the campuses come from outside the region.

### *Two-year schools*

The two-year colleges are core institutions for marrying supply and demand considerations in a regional economy. They have two methods to address business needs. First, they have a workforce development arm, which provides customized training to meet specific and well defined skill needs. Second, they provide well developed certification and curricula to train more generally to industrial or occupational categories. These courses are overseen by business advisory councils, which meet regularly to ensure the relevancy of the curricula to current needs. Some colleges have established other outreach methods such as business surveys to keep their curricula and course offerings pertinent to regional businesses.

In terms of workforce development, TSTC is the largest player in the region. According to interviews, TSTC sees this as strong area for growth and has initiated an aggressive, and successful program for winning state grants and providing substantial opportunities for customized business training to the region. Currently, revenue obtained through workforce development grants probably equals the revenue they receive through credit hours, suggesting a huge success in this area. TSTC have built partnerships with area community colleges to disseminate the training, although these have not been problem free.

While TSTC's workforce program provides needed infrastructure for workforce development regionally, a number of external factors prohibit the region from fully benefiting from these efforts. First, TSTC's service area is the state of Texas, and they provide training on a U.S. scale. This may build regional institutional capacity but contributes little to the local economy, especially if national training endeavors are unrelated to either existing or emerging industries.

Second, TSTC has an agreement with the community college system in which TSTC must provide the right of first refusal to the community college where the business requiring training is located. Most of the area community colleges, however, have more limited involvement in workforce development activities, but do not always want to refuse the training opportunity, especially since a lack of resources tend to limit their

ability to recruit those opportunities on their own. Moreover, their interest may increase since the State recently changed the regulations to make workforce training a reimbursable expense so it does not compete with credit hours but complements college activities. This agreement, which has had the positive effect of increasing cooperation among the two-years, does hold some threats that businesses may not be getting the skills training they actually require, as many of the other two years appear weaker in this area. WTC, Cisco and Ranger are fundamentally transfer institutions, with the majority of their students moving on to an advanced academic degree or certification programs, not directly into the labor market.

Third, a good proportion of TSTC's grant development activity has been done through a consortium approach. When a region has existing industry clusters, this is the strongest approach to take. However, in West Central Texas, the consortium has been some what generic (the exception is the recent health care consortium grant) which means that the training opportunities have had to be somewhat generic and diluted (OSHA requirements, business management, health and safety, etc.) which helps local businesses stay afloat and meet daily requirements and federal regulations, but does not provide the specific, tailored training to apply new technologies, and increase the skills and competitiveness of businesses.

Looking at the available curricula, all schools workforce tracks are related to the local job market, such as health care, business computer applications, and day care. As noted above, Cisco, Ranger and WTC are transfer institutions that help students develop more along academic than technical lines.

Even within TSTC, which provides a higher level of technological training than the others, the students remain the predominant customer for developing its core curricula, and the numbers suggest they prefer choices that give them a certain degree of job flexibility and mobility. TSTC's most popular course of study consistently over the past five years has been computer information technology, which prepares the student for multiple office uses of the computer. Growing in popularity over the past couple of years has been the computer networking technology track that prepares students for managing local area networks (includes a series of recognized certificates such as Microsoft Certified Systems Engineer). However, while these studies increase the computer technological and technical literacy in the region, they are not building the workforce for technology industries per se. Rather, they are providing an important layer of skilled people who can support the use of technology in the workplace: a significantly different goal and labor force. Even so, many leave the region to find job opportunities.

### *K-12*

The K-12 institutions focus on academic training. The convergence of a number of trends is slowly eliminating the more traditional vocational tracks and courses. First, budget restrictions and increasing cost of technology, even in areas with continuing local demand such as auto mechanics have led schools to cut back or eliminate these courses. Second, where vocational tracks exist, teacher capabilities and availability often influence

what types of vocational trade and other career tech initiatives move forward rather than community/business/industry need.

Finally, the focus of vocational training, known as Career and Technology Education (CATE) is on technology training, which students are required to take in order to graduate. Thus many students will enroll in some of the CATE technology courses, in particular, Business Computer Information Systems (BISC) and other computer based skills such as web design, but do not complete full career training tracks. Rather they choose courses to enhance their overall skill base rather than a specific career. On the positive side, this transformation increases the overall computer literacy of students and increases the number of students taking more hands on, vocational style courses.

Notably, Region 14 devotes more resources and has a higher enrollment in CATE courses than does the State of Texas, according to 2001 TEA data. For example, 28.3 percent of Region 14 students are enrolled in CATE course as opposed to 18.9 percent average in Texas. In the Abilene ISD, for example, 7,000 students enrolled in a CATE course last year, 33,000 have taken at least one in the past 5 years. The region demonstrates a stronger commitment to maintaining some practical skill training for its students

The Tech Prep program regionally has a similar orientation. It is much better developed along academic tracks linking schools and colleges than vocational/engineering tracks and has weak links to the business community. For example, Tech Prep is particularly strong in BCIS (business and computing) courses. This parallels state figures, where business makes up the largest percentage of tech prep students (26%)<sup>2</sup>. As the region moves forward, building the capacity of tech prep to develop technicians will increase in importance.

### *In Conclusion*

Although the region struggles to match labor supply with labor demand, some mismatch is not necessarily negative. The curricula available to develop a technology-oriented workforce (e.g. Digital media, robotics and automation, pre-engineering curricula) provide an important component for building a technology-oriented economy and building local skills. However, the limited number of jobs in this area and the low wages vis-à-vis the metroplex fuel an exodus of skilled workers from the region.

When supply and demand do match, it feeds existing, stable sectors such as health care and teaching, not wealth generating industries required to promote economic transformation. While this is important for placing individuals into open jobs today, it does little to promote the transformation of the economy.

Abilene and West Central Texas, like many other communities, struggle to manage the tensions that exist between meeting the needs of local businesses and individuals in the current workforce and preparing the emerging workforce for new and emerging industries. The Workforce Investment Act created One Stops to better coordinate supply

---

<sup>2</sup> TechPrep of Texas, Data Summary, August 2002. Full Tables available from [www.TechPrepTexas.org](http://www.TechPrepTexas.org).

and demand today, and Workforce Investment Boards, to provide strategic leadership to create a system that can address longer term issues. Abilene, as elsewhere, is still learning how to make these vehicles function efficiently and effectively. Given their current economy, a focus on meeting today's demand may obscure or negate the activities required to meet the demands of technology-oriented businesses. In other words, the region may have to accept a mismatch between supply and demand in the short run to build up a certain skill base.

### *Limited Science and Engineering Curricula with Connective Career Pathways*

The universities only provide pre-engineering options, meaning that no civil, mechanical, chemical or electrical engineers are trained locally. Students have to go outside the region to build those skills. The costs of building a new engineering school and the opposition by the universities to a competitive engineering curriculum assure that no such engineers will be trained locally. Without access to engineers, the region is missing a core layer required to fuel technology industries.

Looking specifically at the technology industries identified by the region as desirable targets, the region has some university level capacity in computer software development. Much of what the universities focuses on is the theoretical rather than the practical application. While the acquisition of the Texas Tech campus starts to build advanced university level capacity in practical software applications, it is very small and will contribute very little at the onset. From a workforce point of view, this is the most mobile and sought after layer of the workforce, which means Abilene will have to fight to keep them. Abilene is not competitive to attract them.

The lack of graduate level sciences also presents serious limitations to building/attracting technology industries. M.As. are available for Environmental Management, Digital Media, and now Software Engineering. There are, therefore, not only limited curricula, but also limited pathways for a student in the region to stay in the region and build a career in technology related fields. While the universities could provide many well educated youth, if they could be enticed to stay in the area, their skills and experiences (part-time jobs, internships etc...) will be highly limited for high level technology development.

There are three areas, however, that offer seeds of hope and a platform to build.

### *Environmental Sciences*

The region has a number of disconnected curricula that educate students in the environmental sciences. Breckenridge is considered a Center of Excellence for Environmental Science Technology within the TSTC campuses. WTC has just implemented an environmental sciences curriculum. The three Abilene universities provide B.A.s in this field. Hardin-Simmons has an Environmental Science Center and offers a specialized M.A. in Environmental Management out of their science and math school. Cooperation exists between Hardin-Simmons and TSTC to provide Hazwoper

training (clean up operations for hazardous materials). While there is minimal articulation among the schools to build pathways for a technical and professional workforce in this area, the basic infrastructure from a curriculum point of view may be available.

Building up an environmental science pathway may be able to take advantage of local assets and turn challenges into opportunities. In some universities environmental sciences is associated with agricultural sciences, suggesting a local supportive culture, a possible recruitment angle from a workforce perspective, and the ability to build a career pathway from the ISD level. Agriculture is one of the most common of the vocational tracks in area High Schools and one of the few areas that includes entrepreneurship skills as part of the training skill base. Also, the Abilene region has a number of environmental challenges, presenting a market for these activities from which to grow or support businesses.

### *Computer Sciences/Software Engineering*

With the opening of the Texas Tech satellite campus, the region has, for the first time, research capacity with commercial potential, and an engineering career pathway, albeit only in software engineering. West Central Texas now has a fluid system that can move people from a B.A. in the local universities to a local M.A. and bring in top students to the region from elsewhere. Cooperation between Texas Tech and the Abilene universities has created non-traditional paths into the M.A. program. In other words, non-computer science students can pursue this option. Moreover, the vision Texas Tech has for the Abilene campus puts it on the forefront of research on high dependability software: an area which will have multi-use and highly commercializable applications in the future. The presence of Texas Tech brings the power and resources of a research university into the region, a core requirement to develop technology industries. Texas Tech has a technology transfer office with experience commercializing technologies and strong support for promoting technology start-ups. Texas Tech does envision stimulating entrepreneurship around some of the research efforts. Given that most of the theoretical work will be done in Lubbock, but the more applied work will be done in Abilene, this provides some hope for commercialization opportunities from this campus. The program, at present, is quite small, and there may be limits on how far it can grow. The region also will want to figure out how the two-years and the ISDs can build pathways into this program.

### *Digital Media*

Digital media is sweeping across Central West Texas campuses and igniting the imagination of many regional students. TSTC Sweetwater's Center of Excellence is in Digital Imaging. Most of the universities offer a B.A. in this field and ACU offers an M.S. Local ISDs all provide some basic courses in this area. The region lacks career training pathways and articulation agreements that build career tracks within the region. Equally importantly, this is one section of the technology economy that is highly reliant on freelance workers and entrepreneurship. Providing entrepreneurship support, as well

as increasing access to health care and child care benefits, will be critical if the region chooses to build up this area. Critically, digital media is a core component of the communications industry, a sector identified by the RFP as a potential target industry.

*Predominance of students in humanities fields*

While the students who pursue a math or science degree program from the region's four year universities are believed to be well trained, there are only a small number of them. The table below indicates that the most popular university undergraduate majors are business, education, liberal studies and theology, representing about half the student body. Science hovers around 10 percent of graduating majors, but biology represents the bulk of that number. Biology is a common pre-med course of study, which feeds into the health care sector. McMurray, for example, has a strong reputation in this area.

**University Degrees by Major (2001-2002 Academic Year)  
(Top 4 and Selected Science and Math)**

<b>Major</b>	<b>ACU</b>	<b>HPU</b>	<b>HSU</b>	<b>McMurray</b>
Business (total)	149 (17%)	35 (16%)	65 (8%)	49 (24%)
Education	141 (16%)	26 (12%)	136 (17%)	68 (33%)
Multidisciplinary Studies	79 (9%)	12 (5% General Studies)	NA	NA
Theology/Christian Studies	78 (9%)	29 (13%)	42 (5%)	3 (1.4%)
<b>Sub total, most popular studies</b>	447 (51%)	102 (46%)	243 (30%)	120 (58%)
Biology	27 (3%)	9 (4%)	28 (6%)	15 (7%)
Chemistry	18 (2%)	5 (2%)	0	4 (2% biochemistry, 0 chemistry)
Environmental Science	21 (2% includes Agriculture)	NA	7 (1%)	1 (.5%)
Physics	6 (.6%)	NA	NA	1 (.5%)
Computer Science	5 (.5%)	9 (4% Computer Information Systems)	14 (3%)	7 (3%)
Math	2 (.2%)	2 (1%)	5 (1%)	3 (1% includes math and computer science double majors)
<b>Sub total, Science and Math</b>	79 (8%)	25 (11%)	54 (11%)	32 (15%)
Total Degrees Awarded (all disciplines not included here)	881	222	485	206

\*Note. Some majors have been combined or reshuffled to create a table that compares across the four schools.

\*\*Source: The four universities.

While the most popular majors, education, business and theology may provide an important layer of workers for the local economy, they make no contribution to the wealth generating industries required to increase wages and overall community prosperity. As noted above, while business is one of the most popular majors, there is no connection between the available curricula and the needs of local industry. Brownwood

businesses have expressed a need for graduates trained in industrial management but must get their graduate training on-line or from Tarleton.

At the graduate level, only ACU and HSU provide Masters Degrees. Similar to the undergraduate offerings, they focus on education, theology and health-related fields (nursing, physical therapy). Of particular interest, HSU provides the unusual special addition of an M.S. in environmental management, out of its Science and Math School, and ACU provides an M.S. in Digital Media. HSU also provides an MBA, while ACU's Business School provides only a Masters of Accounting.

While some positive changes have been identified, they remain small with limited impact on the region's ability to build a fully layered technology work force. At ACU, the business school has focused on integrating technology to a high degree into their curriculum, so that its graduates will be technology savvy and technology aware. Although the numbers remain small, the hot new areas of student choice, according to interviews, include digital media at ACU and computer science at McMurray, which now also includes a multi-media dimension.

#### *Workforce development recruitment difficulties on the ground*

All the two year colleges noted that recruitment not placement is the largest problem they face. This problem occurs on two levels: recruiting students to many of the more vocational/workforce tracks (auto mechanics, aviation mechanics) that support local businesses and recruiting businesses to avail themselves of free workforce training providing through grant development efforts of TSTC and other schools in the region. Encouraging students to choose technical fields requires they have an understanding of the future of these jobs. This is not just an education issue but also a cultural transformation of the attitudes of community stakeholders (government, media, schools, parents) to certain types of industries and entrepreneurship. Vocational and technical tracks have a bad reputation, in part because they are seen as inferior to an academic career path. As a result, they may also receive some of the weaker students.

Compounding the recruitment problem, many students who choose the 2 year technical path cannot handle some of the harder, science-based curriculum such as nursing and environmental sciences. Over half of the students entering starting two year schools must take remediation courses in math and English. This problem reinforces the vision presented at the beginning of the paper, no matter what path a student takes, they must be first and foremost be prepared academically to a high level. Two year curricula are not an easy route to a job. Rather, technology demands higher skills of its users, all of them, at all levels. The more vocational and academic education can be integrated, the more these ideas will break down.

#### *The region lacks the amenities to attract and retain young talent*

All the universities lose a high number of freshmen due to their high tuition costs, lack of academic preparation, lack of local amenities, and the religious curriculum demands of

the schools. Increasing the freshman retention rate might be a common core benchmark the cities and universities can share to determine if their efforts are succeeding in building a more attractive, more vibrant, and more diverse place to live.

*Lack of supportive services to overcome obstacles that prevent certain populations from accessing training*

Some individuals have limited access to jobs and/or training opportunities due to a lack of day care and transportation. Although all the area two year institutions have programs to provide support for these activities, funded through Federal Pell Grants, many schools do not have enough to meet the demand for these services. Moreover, the support is only partial, and may not cover full costs to the individual.

These issues, combined with the lack of health care benefits, are core problems shared with area businesses. As noted at the beginning of the paper, overcoming these obstacles may mean attacking the problem from a community-wide perspective.

*Students falling through the cracks*

The school system in the Abilene region, overall, appears to be a good one (see section III). The testing data and the reports from the High Schools paint a strong picture of the regional education system. Other evidence puts this somewhat in question. First, both universities and two-year colleges report an increasing need for remedial work for incoming students. In the two year colleges, the majority of students need some type of remedial assistance. Second, local businesses in our survey expressed some dissatisfaction with both the academic and social/basic skills of the emergent workforce.

How do we explain the discrepancy in opinion? Even though the Federal Government has increased the testing standards states' are required to achieve, the recent decision of the State of Texas to require the more rigorous recommended program of studies of all students in conjunction with the newer, harder testing regime, implicitly acknowledges the need to train students to a higher academic level. The Texas Business Education Council pointed to the need to increase overall academic standards throughout the state, and strongly supported the need to require the recommended program. While the movement toward stronger academics presents an overall positive development in the region, it also issues a number of challenges.

Interviewees have noted that many schools are good when it comes to the academically strong, and have impressively low drop out rates, overall they do not do a good job with students heading straight into the labor market, or those facing high risk situations who fall through the cracks. Increasing the standards may increase the number of students who might fall through the cracks, putting demands on the schools and the community more generally to find better ways to keep them in school and support them academically.

In many ISDs, a significant proportion of students fall into the economically disadvantaged category, as measured by eligibility for free or reduced lunches. The risk of students falling through the cracks is not an insignificant one. The Texas Education

Agency statistics report that in 1999 and 2000, only 27.2 and 38.1 percent of regional students took the recommended program. However, 2001 statistics for selected regional school districts in the region suggest a more positive picture but there are stark differences when regional breakdowns are assessed (See Appendix). Overall, white students have been more likely to follow the harder academic paths. The figures can be substantially lower for ethnic students and those classified as economically disadvantaged. (See Appendix) For the overall health of the region and to achieve the vision of the new economy, raising the academic capabilities of ALL students in the region must be a regional priority embraced by all regional institutions.

Moreover, in some school systems, a large proportion of students do not go straight to college. As technical tracks are being reduced in High Schools and inadequate resources are available for career preparation, these students enter the labor force unprepared on many levels, a point that has not gone unnoticed by local businesses.

### **Regional Assets**

This section points out the assets present in the region that can help it transition into the new economy. These assets can provide the foundation for growth. They will need to be supported and nurtured as part of a wider strategy to achieve a new vision.

#### *Adaptive training institutions*

This report has suggested that currently the two-year colleges and other institutions cater to student interest. Where supply and demand meet in the labor market point, the curricula supports stable industry jobs not technology or wealth generating industries. Given the available jobs in the economy, this is a fairly rational strategy. Thus key question for the region is not necessarily “are the curricula for certain technology industries available in the region?” The answer is no and yes. The region has no minimal capacity to build the professional layer of high technology workers. However, with planning and consideration, it can probably train the technician level. However, they are not training very many of them at present. The more important question is how quickly can institutions respond to the specialized training needs of a new industry or new opportunity? Can these institutions be a partner in developing the assets that can attract the industry?

According to the schools, they are confident it can be done fairly easily, usually within a year period for a new curriculum. Continuing education short courses can be done quickly but for a price, and the further a field they must go to obtain the appropriate expertise and the faster they have to put it together, the more expensive it will be. While this may be acceptable to large firms, it may be difficult for new and emerging small companies to afford. Moreover, if the training is done through continuing education, the skills are not recognized across the State in the same way that credit and certification courses are. These skills may be less transferable to other businesses or parts of the region. If continuing education courses are used as a short term strategy to build larger

curricula or developed in strong cooperation with area businesses to meet a clear regional gap, they provide value.

Overall, the evidence does suggest that the 2-year colleges can provide fairly adaptive and responsive workforce training across the board. The overall response of the training agents to the current and continuing needs of the health care industry suggest the capability of the system to respond to business. Both the universities and the 2-years have developed various certification and degrees for nursing and other medical specialties in direct response to industry need. However, they have trouble recruiting good students for some of the more demanding courses, and keeping them regionally given the low salary levels available: a trait shared with many other occupations.

Adding to the region's assets, TSTC can tap into a Texas-wide network of experts. As Distance Learning becomes a bigger part of their overall growth strategy, their ability to bring in a wider range of courses and training opportunities could increase. WTC also implemented an aggressive distance learning strategy, tapping into Texas-wide networks to expand their educational course offerings. In addition, the Sweetwater campus has shown adaptability to serve emerging technology industries. TSTC built the only the clean room in a 2 year college in Texas to support semiconductor businesses. When these businesses closed their doors, Sweetwater developed a robotics/automation curriculum, also related to an area business, which later closed. Now, Sweetwater is building a new digital media curriculum. The Abilene campus helped develop the aviation curriculum, which supports the aviation industry at the airport. All of this suggests an ability to meet future needs, at the technician level, when they arise.

TSTC also has become quite aggressive and adept at winning workforce grants and providing workforce training to area and Texas businesses. While they have had trouble selling the training, and the available offerings have been somewhat general such as health and safety, this demonstrates a strong asset: the ability to win grants on behalf of area businesses. As Abilene builds new industry, this will provide a true advantage.

### *Emerging New Capacities*

The West Texas region has been developing its technological capacities on a number of fronts. These are seeds of change the region can use to move itself forward.

### *The Arrival of Texas Tech*

The recent acquisition of the Texas Tech Campus provides an M.A. in computer software engineering, a level of engineering accreditation previously unavailable. The campus will research the application of intelligent software that may provide the region with commercialization and entrepreneurship opportunities and capacities. The Abilene universities can serve as feeders into the program. The location of the Texas Tech Campus in the downtown adds to the potential of the downtown area.

### *Specialized Centers of Excellence*

The region has a number of specialized academic centers in place or in development that can serve as core assets to build up and sell the region.

- ACU's business school is undergoing a large capital campaign, part of which will support the development of a Leadership Center. Entrepreneurship could become a part of that center, especially if the region gets involved in its development.
- HSU has an Environmental Science Center.
- Each TSTC campus has a center of excellence, specializing in a particular technological area. Sweetwater focuses on Digital Imaging and Design. Breckenridge is the center for environmental sciences. Abilene offers Aviation Mechanics and Brownwood specializes in Manufacturing Technologies.

### *Distance Learning*

The region, with the support of Region 14 and TIF grants, has built a comprehensive network for Distance Learning (DL) that is used extensively by both the ISDs and the two year colleges. Schools see technology as a tool that will allow them to change gears more quickly and insert more flexibility into education. Individual ISDs have taken the lead in cooperating to share teachers. DL also supports an increased trend in dual enrollment courses between ISDs and colleges. WTC, which is particularly advanced in the use of DL, employs multiple distance learning techniques that can reach students who might have obstacles to getting to class. Coleman has taken an integrated, multi-stakeholder approach to DL, using it to support education, economic development and community objectives: a lesson the region should learn from.

While DL will become more important as schools face tighter budgets and academic standards increase, this incredible important asset faces the following challenges to its sustainability:

- Increased usage of the Internet for both distance learning and in-class applications will overburden the existing network. Hence the region will have to consider how to keep paying for band width updates as well as the financial challenges of keeping new technologies up to date.
- Different scheduling systems, particularly differentiating the Abilene schools from the rest of the region, may limit the ability of the region to tap into the resources of the city schools.
- The TIF grant may twilight, threatening many schools with the loss of the advantages it provided, such as reduced price T1 line charges.

The Abilene region will have to work together to ensure this budding resource with enormous education and economic development potential is not strangled for lack of finances.

### *Increased use of dual enrollment*

There has been an overall increase in the use of dual credit academic courses between the 2-years and the ISDs, supported by Distance Learning network. Dual enrollment increases the academic standards available in schools and helps develop diverse educational pathways for students. Many students opt for dual enrollment that would not choose an AP course, increasing the number of students obtaining college credit prior to graduation.

The interesting question is whether the combined trends of dual enrollment and Distance Learning can be used to develop the technical career paths available in the region. Currently, dual enrollment and DL are used predominantly for academic classes. And many interviewees have argued that skills training is not amenable to distance learning techniques given the need for hands on experience. However, many computer based courses, including programming, technical drafting and computer aided design are on-line and in use in other areas.

### *Willingness to cooperate and emerging models of cooperation among education institutions*

Although the cooperative landscape is far from perfect, the education institutions in the region show a capacity to work together to meet common regional goals.

### *Four year colleges*

The Abilene universities have demonstrated an ability to work well together, creating, for example, the Intercollegiate Nursing School and a common library system. The four universities have expressed a strong commitment to support the community individually and through cooperative efforts. Although willing, the universities do not know the best ways to be useful and their students remain their priority constituency. While the relationships among the four years are good, there are minimal relationships between the four year and two year schools.

Notably, cooperation may not always work to the region's benefit. The three universities did work together against the development of a Texas Tech undergraduate engineering program in Abilene.

### *Two year colleges*

Although there has been a lot of hostility among colleges in the past, they have started to work together. Part of this is a result of TSTC non-interference policy: which requires them to give community colleges the right of first refusal to provide workforce training to businesses in a college's catchment area. In addition, TSTC has implemented an aggressive, coordinated approach to workforce training across the campuses and through partnerships with regional community colleges.

Cooperation among the two years, however, remains fragile. Declining population and declining funds are increasing the competitive environment among area colleges creating an unwillingness to partner. TSTC is still seen as the big gorilla, which means each new effort must be negotiated anew each time. TSTC also has a reputation for heavy handedness and non-delivery in the past, which they are still working to counter. Long term partnerships among the colleges still need to be built.

### *K-12*

Cooperation among ISDs and between ISD's and two years is forging ahead facilitated by ambitious distance learning activities. Region 14 service sector coordinates cooperative efforts among the ISDs and reports the region works together very well.

### *Across Sectors*

TSTC, in partnership with other two-year colleges, have built two business consortia to deliver workforce training. These consortia provide a good regional model of cooperation. The consortium building and negotiation skills used to build this cooperative effort within an industry (Health care) and across industries are excellent foundation skills for any workforce system.

Cooperation among regional political institutions appears relatively weak. A challenge and an opportunity for the region may be to find a way to build regional efforts using the cooperation among educational institutions as a foundation.

### *Growing Enrollment in Regional 2 Years*

Another important trend is the growth of students attending the 2-year institutions. For example, between 1996 and 2001, TSTC enrollment increased by 43 percent, moving from 1019 students to 1457 students. Looking at enrollment data by subject matter, computer information technologies and computer networking technology are the two most popular courses, with 16% and 14% of total student attendance.

WTC also has seen growing enrollment, and expects to increase that over time, in particular through its participation in the Virtual College of Texas, a consortium of distance educator that share courses. WTC's fastest growing programs are early childhood education (day care), ITT and C++ certifications, which can be done as part of a series: these two plus Microsoft and Cisco. This track allows students to leave with a critical series of certifications. Many of these graduates, however, move to Austin. Courses in decline include criminal justice (which fed the prison's employment), welding, diesel mechanics, and cosmetology.

Cisco has seen a growth in allied health fields. The problem they are struggling with is recruiting good students who can handle the demands of the curriculum.

### *An Engaged Student Population*

All the universities interviewed believed that a large proportion, probably a majority, of students work part time in some capacity. The availability of students provides a good workforce for the service sector necessary to support an improved quality of place. These types of jobs, however, will not keep them in the region, but may be a method to build quality of place as new industries are nurtured. As new businesses emerge, having established internship and mentoring programs is an important method for helping to retain students once they graduate by exposing them to local business opportunities. University observers also claim they have a highly engaged student community. Given the Christian mission of the four universities, the students have a high voluntarism rate. This might be used to support quality of place issues and improving the skills of the hardest to serve. Notably, HSU has implemented a new Masters in Community Renewal and intends to use the program to support improvements in the Abilene Community.

### *An Engaged Civic Population*

Many of the communities in the region have active local education foundations that provide scholarships and other support for local education. In some communities, such as Haskell, the number of supportive institutions are so plentiful, observers note that any student wanting to enroll in college can find some local money.

Oddly, however, observers note that the region lacks parent-teacher organizations past the elementary school level. This is a major gap in terms of the education of career options and choices. Parents are key influences in the career path choices of their children and strong proponents of four year degrees.

### *Good K-12 Academic Education*

Region 14, which covers most of the region this study addresses, has not had a low performing campus since the inception of the Texas accountability system. In all relevant education statistics, the region out performs state averages (See Appendix). Overall drop out rates for the ISDs are low, and those statistics remain the same for most ethnic groups in the region.

All students are being exposed to technology in some capacity, developing core skills for the new economy. Many schools emphasize sports and extracurricular activities, which interviewees believe has the positive impact of keeping them in school. However, business and higher education leaders have questioned the stress on sports and its potential impact on their academic achievement and their capabilities in college.

### *Local best practice models addressing pressing problems*

Within the region, different communities and institutions are making strides to overcome challenges and building assets. The region can build on these initiatives. Below are some

models identified in the interviews. It is not an exhaustive list and other relevant models may be found in sections III and IV.

#### *Overcoming barriers to training*

- WTC and Cisco have devised methods to reach those students who face transportation and child care obstacles to receiving education. WTC has built up a strong DL capacity including Internet, interactive TV and cable TV options. WTC has its own TV channel to provide courses directly into students' homes. Cisco puts some of its courses on videos to allow people to study from home.

#### *Technology in schools*

- Stamford ISD is an excellent regional model of how to think through and apply technology in schools.
- Coleman is a model on how to bring the county together to develop a distance learning network that serves education, economic and broader community goals.

#### *Entrepreneurship*

- Tech Prep supports some interesting entrepreneurship efforts in the schools. Entrepreneurship type activities are also identifiable in some of the CATE tracks. Agriculture and Future Farmers of America were the most cited activities with in built entrepreneurship activities.

#### *Keeping kids in school*

- Some ISDs have developed day care options to keep students in school.
- Some schools have implemented leadership classes to help build social skills for managing the world of work.
- Certain areas have implemented Excel education centers, which provides an alternative high school opportunity for those requiring a different approach to education.
- Coleman ISD identified its strength as its ability to support at risk kids.
- Abilene ISD has a strong early reading program that helps kids catch up early on.

#### *Integrating Academic and Vocational Education*

- Albany ISD has developed a school culture that integrates academic and vocational education.
- Sweetwater has a strong school to work program. Although it is being reduced in response to funding cuts, they are keeping as many components as they are able.

#### *Building Career Pathways*

- Abilene ISD has developed a career pathway for engineering with Texas Tech.

## **Conclusions: Summary of Findings**

In this final section, the report summarizes overall findings in three areas: institutional infrastructure, the overall workforce system, and curriculum needs vis-à-vis the industries targeted in the initial project RFP.

### *Institutional Infrastructure*

The region has a relatively rich albeit generic educational infrastructure. It has the capacity to build a general, tech savvy population, but still has substantial gaps in its infrastructure for building a strong technology base. The region also faces looming threats, common across the country, which it will have to manage. These three areas are summarized below.

#### *Assets and Opportunities:*

- The region has reasonably adaptive training agencies: The technical schools probably have the capacity to respond to new needs over time.
- There is growing enrollment in the two year institutions.
- Cooperation among many regional educational institutions is good in many areas, and getting better where it had previously been problematic.
- The region has a strong K-12 system.
- Abilene, in particular, has an engaged university student population.
- Throughout the region, the civic population is strongly supportive of K-12 education.
- Substantial business training is available, although it is too focused on accounting and finance.

#### *Gaps:*

- The universities have minimal research capacity.
- The predominance of university students are in humanities and social sciences (teaching, nursing, business, general studies), so technology professionals (science and engineering) are not trained locally.
- Community colleges are fundamentally transfer institutions. The available workforce training is limited by regional job opportunities. Where technicians are produced, the two years schools are finding it difficult to recruit students into these courses.
- Schools are not meeting the needs of students falling through the cracks or those entering the labor market immediately upon graduation. As standards increase, this issue will become more challenging, at least in the short run.
- There is a lack of support services (health care, day care, transportation) to overcome obstacles to training and work.
- There is insufficient parent involvement in schools at middle and high school levels.

*Threats:*

- Abilene and the region are unattractive to professional talent in terms of amenities, job opportunities, and wages/benefits available.
- Increased academic standards may mean larger numbers of students fall through the cracks, especially those who are economically disadvantaged or from particular ethnic populations.
- Declining school resources and populations are forcing the elimination of technical training and threatening technology infrastructure.
- There is an increased competitive environment among community colleges. Cooperation is the only way to move the region forward.

*Workforce System*

The core finding is that the relationship between supply of labor and the demand for labor in the region is partial and problematic. Where supply and demand fit (e.g. teaching, health care, business technology applications), it is unrelated to technology industry growth or dynamic interests. Where mismatches exist (e.g. computer networking), the technology component is stronger but students leave the region for job opportunities. Training for more technology oriented jobs, which many students are choosing in the two year schools, is constrained by:

- Existing industries and occupational choices
- Limited quality of place
- Limited entrepreneurship culture
- Low wages and benefits

Overall, the system needs to find ways to manage the natural tensions that emerge between meeting today's business needs and planning for a more technology-oriented, competitive environment over the long term.

*Curriculum Needs*

The RFP asked us to assess available curricula for the following types of industry. They have been categorized by curricula type.

*Specific Industry Curricula*

- Computer software and hardware design and production
- Semiconductors
- Microelectronics
- Communications
- Aerospace industry
- Bio-tech research

### *Entrepreneurship and Business Curricula*

- Home-based industry
- Emerging industries

Looking at curricula available for specific curricula, the limited science and engineering curricula with connective career pathways available to train professional tier of the technology workforce, lack of research capacity and general unattractiveness to younger, professional talent means that the region will be challenged at present to support these types of industries from the point of view of building a full-blown, competitive technology cluster. Without research capacity, bio-tech research can not be built, so should be dropped from the list out right.

The region does have some university capacity in computer software design and production but the curricula are focused on theoretical rather than practical applications. While the acquisition of the Texas Tech starts to build advanced university level capacity in practical software development applications, it is very small. Resources and efforts will need to be devoted to build this seedling into a thriving, competitive industry. In addition, the growing focus on digital media at the ISD, two year and 4 year level begins to build solid training for a communications industry. From a workforce point of view, however, this is the most mobile and sought after layer of the workforce, which means Abilene will have to fight to keep them. Abilene is not competitive at present to attract them.

Looking at the other specific industries, the region can attract small sub-sections of them that use a technical workforce. On the technical training side, the region's capacity is stronger and has some solid infrastructure, although some of it is not currently in use. TSTC is training technicians, such as aviation mechanics for aerospace industry, and digital imaging for advance communications. It also has the only clean room available at a two year school in Texas, a must for training technicians for the semiconductor industry, even if it is currently not in use. The regional institutions, if supported, could be developed to educate the technician level in these industries. Right now, however, most of the curricula available at the two year institutions related to technology does not serve technology industry per se, but create technicians who can support the application of technology in the generic workplace.

The key, therefore, is not curricula, as the region could build the technical layer with time and resources, but having a place that professionals want to come to. Since the region is not training science and engineering professionals, it will have to attract or retain them. That is not a curricula issue.

To support home based and emerging industries, start-ups in other words, the core issue is the presence of entrepreneurship culture and education. The region lacks entrepreneurship training at all education levels. Although business education is available at the universities, it is disconnected from regional business needs. While the area businesses school provide important infrastructure to build this, the region must find

a way to better engage those schools in the regional economy. In addition, the two years and ISDs should be encouraged to support entrepreneurship education.

## IV. The Action Plan

This final section identifies opportunities and recommends actions to help Abilene promote economic vitality. Each action also includes recommendations for responsible parties and the time frame for implementation.

### *Better Engage the Universities' Activities in the Region's Economic Vision*

Overall, there is a need for rapid acceleration of relations among the universities and between the universities and the city/region to contribute measurably to the region's economic engine and ability to diversify. Below are action steps that can be pursued.

- The city should work with ACU and ACU's Business School to support its emerging new business leadership center. Although it cannot be a full-fledged entrepreneurship center, the school has expressed a willingness to support the city. The city should bring together ACU, the business community and other stakeholders to see how the center can contribute to the regional economy. For example, can they build some support for entrepreneurship into the structure? Are there ways for the universities to work together to increase the business support and entrepreneurship resources available generally? Can the universities' business schools support Texas Tech's aspirations to promote start-up activities through the research conducted in Abilene?
  - *Responsible Parties:* This activity should be pursued by DCOA, or another representative of the City, and ACU.
  - *Time Frame:* This should be undertaken immediately as the Leadership Center is in the process of development. That should be the starting point for this relationship.
- Work with the area business schools to devise a list of faculty who provide consulting services to businesses and in what areas and make this widely available. ACU faculty, for example, consults nationwide in some key areas. Negotiate with faculty to provide reduced fees for area businesses. Once the resource list is devised, have it reviewed by business representatives and focus groups. If certain types of expertise relevant to regional businesses are missing, investigate the idea of universities hiring new faculty together to meet that need. In addition, work with faculty to find ways to harness the skills of the business students to support new area start-ups and small businesses. Students can receive credit in lieu of salaries.
  - *Responsible Parties:* This activity should be pursued by DCOA or another representative of the City, and area business schools. The Chamber and other business representative organizations also might be involved in identifying core consulting needs.
  - *Time Frame:* This project can do be done fairly quickly and should be undertaken within the first year. It will begin to build key relationships with area business schools, as part of a long term strategy to better integrate business school curricula into regional economic need.

- The universities also offer tremendous resources to improve the overall quality of place of the city specifically, and the region more generally. Areas worthy of attention include:
  - community renewal in Northern Abilene where ACU and HSU are located (their land use decisions and residence policies should be reviewed through this lens),
  - developing their cultural and artistic resources to create festivals or cultural events (e.g. theater and music are strong from a curricula point of view in the region) that can begin to develop a larger than regional attendance and establish a name for the region.
  - celebrate the international students in some way, to build a more global outlook and global identity, and help reposition Abilene's reputation as an open, exciting place for all types of people.

*Responsible Parties:* This activity should be pursued by DCOA or another representative of the City, and area business schools. Other stakeholders such as the Arts Council should be identified to assist in the development of these projects.

*Time Frame:* The city and the universities should develop a five year plan that develops and prioritizes quality of place events. Major events should come on the scene within 3 years.

### *Build Seamless Education Pathways among Relevant Education Institutions*

West Central Texas needs to build more seamless systems that support higher credentialing along clear paths for students. Pathways do not have to be limited to regional universities because they do not offer enough options to build a complete workforce for the new economy. Pathways should not be limited to youth but create multiple entry and exit points for individuals at different stages of their career. Actions that can help move the region toward this goal are listed below.

- Bring guidance counselors and parents to 2 year colleges to ascertain the range of opportunities for a wider range of students. WTC's summer camp, which brings students and parents to WTC, is a good regional model to learn from.
- Build on the WTC- Texas Tech partnership as model for other school relationships in the region. Texas Tech provides guidance and financial counselors monthly to the WTC campus, creating an easy, seamless system for students wanting to build skills and expand their education. TSTC has expressed a willingness to provide this type of service to the ISDs in the region.
- Develop a system the region can use to track the talent that migrates out of the region. Strong partners in this area are High School and College Alumni networks. As the Abilene economy improves, and jobs become available, that information can help recruit that talent back. Currently, the region does train its best talent to leave the region and that will continue if the region cannot produce the jobs locally. Fortunately, many head to a small subset of areas (Dallas/Ft. Worth and Austin) that can help focus a marketing campaign to attract them back to their Alma Maters but only once the region has sufficiently built product.

Additionally, interviewees noted that university alumni loyalty could be quite strong, due in part to the religious orientation of the college.

- Develop seamless pathways among regional schools in the three areas identified earlier in the report: Digital media, environmental science and Computer software engineering. While some pieces are in place, the end goal is for a student in K-12 to know what they need to do to achieve up to an M.A. in one of these fields. In addition, include the business schools in these plans to contribute entrepreneurship and management skills curricula to support business development in these three areas.
- Highlight and develop the role of the One Stop as clearinghouse on all available training and relationships between training and on the ground career pathways. The One Stop should make its own, user friendly consumer reports on regional training opportunities available on its web site. Currently, it provides access to the Texas wide system of consumer reports that is neither user friendly nor does the presentation of statistics put the region or regional opportunities in a positive light.
- Existing programs such as Tech Prep, School-to-Work (if it survives in some form) and youth programs will need to be partners in this area of work.
- Develop parent-teacher associations at the Middle and High School levels that include guidance counselors. Make career pathways a core focus of their agenda. This will provide additional resources to the effort and help educate parents and guidance counselors as to how it works (e.g. students do not have to start at a four year college to arrive at a particular outcome).
  - *Responsible Parties:* The Workforce Investment Board and should take the lead in prioritizing which activities to pursue and working with the various stakeholders to move these ideas forward. DCOA should be a core partner in developing the tracking system.
  - *Time Frame:* The stakeholders should develop a ten year plan that develops and prioritizes the building of core pathways, based on target industries and occupations. Flagship projects, especially the tracking system, should be implemented within the next two to three years.

#### *Ensure adequate resources to maintain and further develop the Distance Learning Network*

The region, or sub-components within it, must come up with an action plan for maintaining funding for distance learning opportunities. The loss of TIF grants would be devastating for many ISDs, especially the discounts provided on monthly T1 service.

- *Responsible Parties:* Region 14 might be a natural leader in this initiative but it will take a strong alliance. The cities, counties, WIB and education institutions should work together to lobby to the state to maintain the TIF grant
- *Time Frame:* This needs to be done immediately.

TSTC has expressed a willingness to take a leadership position in the region to increase available bandwidth. Ask them to do so and support them fully. Get them to undertake

this activity as soon as possible. Band width will soon be a critical issue, as Distance Learning becomes an increasingly important education and economic activity for the region.

Other actions include:

- Work with Region 15 and any other relevant areas to work out some of the operational difficulties that prevent some ISDs in the region, such as Coleman, from fully participating in regional Distance Learning Activities.
  - *Responsible Parties:* Region 14.
  - *Time Frame:* This needs to be done as soon as possible.
  
- Better integrate the distance learning network into economic development and other community needs. This will not only benefit the community, but also increase the support and resources needed to maintain and grow. Coleman is a local model to learn from in this regard.
  - *Responsible Parties:* This probably should start locally with counties taking on the responsibility for bringing together the various stakeholders to investigate how to integrate these efforts.
  - *Time Frame:* This should be prioritized over the next five years.

*Find community-wide methods to reduce or eliminate barriers to work and training*

The region needs to recognize that helping individuals enter the world of work also helps businesses compete and grow. The inability of businesses to provide core benefits makes them highly susceptible to labor turnover, and makes the region, overall, less competitive to the Metroplex. Solving barriers to work placement and retention should be approached as a community goal with benefits for all stakeholders. Below are potential actions to achieve this goal.

- Find ways for small companies to collectively provide health care and day care benefits, even to low wage employees. For example, in many communities, the Chamber or other business trade associations provide reduced price health care plans as a core membership service. The association can negotiate with larger market muscle. Even if employees may have to pay for some of the benefits, the strategy is to increase opportunities and lower prices over all. Alternatively, jump start the creation of a non-profit association that can negotiate health care benefits that individuals can buy into at reduced prices. Similar projects, such as business consortia, should be investigated to expand childcare accessibility. Community colleges, which are large employers and have an interest in supporting day care for students as well, have noted an inability to provide childcare to due insurance costs. They could take the lead in developing a consortium approach to providing day care options.
  - *Responsible Parties:* The Chamber of Commerce and/or DCOA should lead this effort. The WIB and the two years also should be considered a

stakeholder to ensure that these services are expanded to serve training as well as business needs.

- *Time Frame:* This should be prioritized over the next five years.
- Create community benchmarks and standards for improving drop out rates, increasing the number of adults with GEDs and/or high school diplomas locally, and supporting youth who fall through the education crack. The community as a whole working together, not just the schools, must be responsible for achieving this vision.
  - *Responsible Parties:* The WIB should take the lead, but DCOA, and all the education institutions all need to come to agreement on the benchmarks and be accountable to them.
  - *Time Frame:* This should be prioritized over the next three years.

### *Encourage all schools to provide entrepreneurship training*

None of the ISDs or two-year technical schools offers entrepreneurship training. This might be an important new area of endeavor for them. Some of the most popular courses offered, such as day care, digital media and agricultural sciences could benefit from high level training in these skills. Additionally, there is an emerging recognition nation-wide that community colleges could be part of the entrepreneurship support framework. According to the National Commission on Entrepreneurship, the demographic most likely to start a business are individuals between the ages of 25 and 44, not MBA students, who require flexible scheduling. This group is part of the core body two year colleges serve and the two years are experienced with flexible scheduling. Given the increasing use of Distance Learning among two years and with ISDs, one curriculum could be developed as a pilot and then later shared through this method. This would increase access to community members as well. Other ideas include the following:

- Create a best practice network of school-based entrepreneurship initiatives that receives a lot of local press. Tech Prep grant money is a good place to build this network.
- Initiate a region-wide student entrepreneurship contest, with prizes for each different level of education (e.g. Middle School, High School, 2 years and 4 years). Ensure that the local press and local Public Relations firms are core stakeholders in this effort. Winners should receive state-wide recognition.
  - *Responsible Parties:* The Chamber and/or the university business schools, in partnership with DCOA, should lead this effort. These might be perfect projects for ACU's new Leadership Center. The press will need to be a partner in this effort as well.
  - *Time Frame:* This should be prioritized over the next three years.

### *Attract and Retain the Workforce*

The region has identified workforce retention as a core goal. This is not a short term goal, but will take investment, effort and cultural change to accomplish. Below are some actions to move the region in this direction.

- Develop and market the Center of Excellence Concept. This includes Texas Tech, and the specialization of each TSTC campus. Explore if other centers, such as HSU's Center for Environmental Science also could fit the bill. Play up Texas Tech's downtown location.
  - *Responsible Parties:* The regional marketing organization, and the various local marketing organizations, as well, should move this action forward. The Press should also be considered a stakeholder in this effort.
  - *Time Frame:* This should be prioritized over the next five years.
- Build product. Currently the area loses workers and college students due to lack of amenities and varied economic and social opportunities. Use student focus groups and surveys as a mechanism to determine their interests and monitoring change in opinion over time.
  - *Responsible Parties:* DCOA should lead this effort. Core stakeholders will also include the universities, the Chamber and the Arts Council among others.
  - *Time Frame:* This should be prioritized over the next five years.
- Exploit university resources to build product (discussed above).
- Build and maintain a tracking system using alumni networks (discussed above).
- Develop common benchmarks and strategies between the region and the universities for maintaining freshmen and graduates in the area.
  - *Responsible Parties:* DCOA and the Universities.
  - *Time Frame:* This should be prioritized over the next three years.
- Abilene should devise a benchmarking system for its quality of place. Many models are emerging in this area. This will help it identify what it has and what must be developed.
  - *Responsible Parties:* DCOA.
  - *Time Frame:* This should be prioritized over the next three years.

### *Strengthen partnerships among education institutions to promote workforce development*

- TSTC could support other community colleges with media management. TSTC receives most of the publicity even in partnership arrangements, which may serve as an impediment to building up cooperative capacity in the region.
  - *Responsible Parties:* TSTC
  - *Time Frame:* This should be done over the next year.
- Create a regional business-education council to discuss needs and capacities and find common approaches to common challenges. This could build off an existing committee, such as that put together by the Abilene Chamber of Commerce, or built independently from a regional perspective. Ensure that small firms and entrepreneurial firms are included on the council. It should not be limited only to

the recognized large firms in the region. Create industry sub-committees as needed. This will be especially important for emerging new industries. They require pro-active help to develop their networking and learning capacity. Use the regional business-education council to help manage the competition among the two years in the workforce development area. Businesses are the core customers after all.

- *Responsible Parties:* The WIB should provide the leadership role for this initiative.
- *Time Frame:* This should be undertaken within a year.

## V. Regional Summaries

In the following section, each sub-region's education and workforce system is looked at individually. Given the size of the region, it was not possible to look at all independent school districts (ISDs) in detail, so the decision was taken to look at the largest ISD in each sub-region because they cover the largest number of students. In addition, several other ISDs were identified as being leaders in a particularly important area and those were also investigated. The research cannot be exhaustive given the size of the region and some worthy programs and efforts in other ISDs that may not have been included. As universities were discussed in depth in the first section, this section will look specifically at K-12 and add some information on the individual 2-year campuses. The discussion below will refer to a series of data. Full data tables are available for review in the appendix.

### *Abilene*

The Abilene/Taylor County sub-region has a strong workforce infrastructure: three private universities, the newly obtained Texas Tech satellite campus, campuses of both TSTC and Cisco College, and strong ISDs (Abilene and Wylie). While it has no tax-based supported community college, Cisco, which is building a bigger campus, provides most of its technical training from the Abilene Campus and TSTC has centered its workforce development activities in Abilene. Abilene is also the primary provider of adult education services in the region and, according to the interviews, is reported to have a particularly strong network of social service providers for a town of its size.

TSTC-Abilene specializes in Aviation Maintenance. In 2000-2001, TSTC's enrollment was strongest in four curricula (listed in size order): Computer Network Technology (21%); Emergency Medical Services (14%); Digital Imaging Technology (12%); and Aviation Maintenance (11%). TSTC students are mostly male (63.4%) and over 24 (52.9%). Cisco, alternatively, is a predominantly a transfer institution, and about 75 percent of its students are on an academic track. On the technical side, Allied health is their largest track (33 percent of students). Criminal justice is the second largest, comprising 18 percent of this population. According to interviews, most Cisco students do stay in the immediate region after graduation.

The Abilene ISD represents the majority of students educated in the region, 50 percent according to one count, thus is responsible for educating a significant proportion of the next generation's labor force. While the ISD received a recognized rating, 14 out of 26 campuses received an individual exemplary rating. The drop out rate for 2000-2001 was 0.5% with no significant differentials in the drop out rates of the different student populations: African American (.7%), Hispanic (.8%), White (.3%) and economically disadvantaged (.5%). Overall, the ISD outperforms the state averages in terms of Texas state achievement tests. According to the most recent exit survey taken by the ISD, 87.9 percent go on to college (2 or 4 year), with 45 percent staying in Abilene to do so.

In terms of preparing the labor force, the Abilene ISD provides the following strengths:

- Abilene ISD has a high number of CATE classes, providing technical and academic education to a large number of students. The ISD also created technical connections to college, which allows students to complete college technical education and high school CATE classes simultaneously. This program was created in partnership with Cisco and TSTC and is available along three tracks: aviation maintenance technology, Cisco computer networking and digital imaging and design. It is available to students in the two primary high schools and the Excel High School (see below). Several CATE curriculum are designed to support students entering employment including agricultural sciences, health science (emergency medical technicians and certified nursing assistants) and trades and industrial (construction, auto, electrical, air conditioning, welding and cosmetology) that provide industry recognized certification. Last year 81 certificates were awarded.
- The presence of the Alternative Excel High School is to support students with low credit levels who require alternative learning approaches.
- Pathways and portfolio programs start in middle school stimulate career thinking. The Mims internship program (Mentoring Industrious Minds) is recognized as a good regional example of career preparation. Mims is limited by available jobs, thus does not cater to a specific industry or provide a huge range of industry options for students. They put on a regional career fair that targets parents to teach them about career paths.
- Abilene ISD has a high level of dual enrollment courses serving 1,000 students in 25 courses, and plans to have such options in 50 courses, increasing the rigor of academic options at the high school level. It also uses block scheduling allowing students to receive 32 credits. This could be an obstacle for other schools that want to use distance learning to take advantage of Abilene's strengths.
- Abilene ISD has a top special education program and is strong in early child care and pre-K program including a pre-reading program.
- Abilene ISD offers a pre-engineering track developed with Texas Tech, so students start on an engineering track early on. However, the students must leave the region to complete it.

In terms of weaknesses, given its size, it is seen by some as being less receptive to regional efforts and is probably one of the least developed in terms of distance learning, as its needs have not been as great as in other parts of the region. It also has no direct involvement in youth programs: this is managed predominantly by a non-profit called Just People, signaling that students at risk of falling through the net may not be getting the attention they need through the school system. In 2001, only 46 percent of students took the recommended program, which will now be required of all students, and only 27.3 percent of economically disadvantaged students pursued this course. Although the data shows that Abilene ISD has made significant progress in increasing student achievement and completion rates, it may face challenges as students are expected to handle advanced academic demands. It also faces depopulation, tight budgets and tough choices involving school closings and bond issues.

## *Brownwood*

The Brownwood region also has a number of workforce related institutions: Howard Payne University, TSTC Brownwood campus, Ranger's campus for cosmetology and its network of ISDs.

TSTC focuses on manufacturing technologies, complementing Brownwood's position as the only sub-region with a manufacturing base. Even so, two programs dominate the enrollment figures in 2000-2001 -- computer information technology (39%) and computer network technology (22%)—and have done so since 1996-1997. However, interviews suggest a decline in network technology in the last year. About equal numbers of men (50.7) and women (49.3) attend the Brownwood campus. About 55% are over the age of 25.

Brownwood ISD, rated academically acceptable, was once considered one of the strongest players in the region in the area of School to Work and Tech Prep. As a result of budget challenges and staff changes, it has reoriented its focus toward a predominantly academic track. Compared to the other ISDs in the study, Brownwood has the lowest level of student academic achievement using the TAAS pass rates as a measure (See data in the appendix). As tests increase in difficulty, Brownwood may face a difficult battle to increase standards.

The annual drop out rate for Brownwood in 2001 was 1.2%, with some differences in their rates of student populations: African American (1.6%), Hispanic (2.1%), White (0.8%), and Economically Disadvantaged (1.9%). Similar differences appear in TAAS pass rates and students taking the recommended course of studies. Technical options are determined through community surveys that stresses what students want rather than what businesses need. Technical options include technology courses (computer information system), accounting, auto mechanics, construction trades, agriculture and home making. Dual credit courses organized with junior colleges however, share credits but do not lead to certificates.

The Coleman ISD, located in this region although part of Region 15 school service district, is a regional model in several areas. First, it sees itself as being particularly strong with at risk kids. Because they are the county seat, they attract many low income persons who want to be near social services and cheap housing, which lowers the tax base and increases the number of at risk kids in the system. To manage this challenge, the ISD has a series of programs such as the Saxon math, mentoring programs, extended day and year programs to keep kids in school. They are also particularly good at working with their Hispanic population. All students are required to take a teen leadership course for graduation that provides instruction in character education and business ethics (basic/social skills). While Coleman, with a .7 drop out rate, is successful at keeping students in school, the ISD still demonstrates significant differences among the different student populations with white students doing better with TAAS tests, and more likely to follow the recommended curriculum. However, Coleman does lead the examined ISDs in

the region in the overall number of students following the recommended program, for total and individual student populations. So while they still have differences among groups, they are doing a better job within the region ensuring that the majority of their students are following and completing the more demanding academic track.

Second, Coleman is pointed to as a good rural community model for building and implementing a distance learning network. The county got everyone at the table, developed a vision for the region, and came up with a strategy that connected schools, hospitals, and community organizations. It took five years but they were able to determine needs and allocate funding in a way that supports all the stakeholders. They looked at all issues related to wiring the town; not just the educational piece. Distance learning becomes a tool to support the entire community and is used by the hospital, the highway department and local businesses as opposed to a tool to achieve narrower academic objectives. Being in Region 15, however, adds some logistical challenges to Coleman's DL project. Most of its potential partners are in Region 14 and the line coordination is not always smooth. In addition, many of the schools follow different schedules that has made DL classes hard to coordinate.

The Coleman ISD is not without some challenges common to the region. Only about 30 to 40 percent of their kids go on to higher education but the school system, like most others, has only limited options in terms of vocational courses: homemaking/child care, agriculture, and Cisco systems. Vocational trade instruction is available, however, at their alternative high school for youth at risk with offerings such as building trades, printing trades, welding and some technology courses. Available teachers as opposed to business demand, however, determine these options. The structure also continues to shine a negative light on technical tracks; reinforcing the image that they are only for weaker students. Tech Prep exists but is not used often but when used it focuses on Business Information Systems. Most articulation agreements with local colleges deal with dual enrollment in academic courses. While it looks like Coleman does a good job in preparing students academically, a critical step in preparing them for the workforce, there are minimal connections between those leaving school and the regional labor market that most students in this area.

### *Sweetwater*

The Sweetwater sub region benefits from the presence of TSTC's main campus in the area. This is TSTC's the largest campus in the study area, educating 47 percent of all TSTC enrolled students in the region. It is the only residential campus of the four TSTC campuses, and consequently most students are full time (74.4 %) while the other campuses have about half of their students enrolled full time. Not only is TSTC the ISP provider for Region 14, it has proven to be highly adaptable to the regional economy, creating core technology curriculum to meet local demand. From the clean room for semiconductors to the robotics track and now to the digital media curriculum, TSTC tries to stay on top of technology to the degree that makes sense to do so.

However, even with the ability to offer some advanced technology courses, the largest courses have been vocational nursing (14%), computer network technology (10%), computer information technology (8%) and automation/robotics (6%). Overall, males make up a significant proportion of students (62.5 percent) and the students are younger than on the other campuses (70.5 percent are under 25).

Sweetwater ISD has been able to take advantage of its proximity to TSTC to help prepare kids for making career choices and choosing pathways. They expose their students to the range of options at TSTC campus and to other Abilene schools to provide them with choices. Students also can take dual credit at the TSTC at a reduced price, because the ISD can provide teachers. The relationship with TSTC also supports their youth at risk programs where students can take Auto shop and EMT training courses. Given that most regional high schools are challenged to maintain vocational and technical training with current budgets and new academic requirements, this model is a good one for increasing options for those students wanting to enter the labor force after High School. Sweetwater is also part of a cooperative with other regional schools to offer an alternative High School for Youth at risk who require alternative approaches to learning to finish High School.

Sweetwater is one of the few regional schools with well developed school-to-work initiatives that have business council involvement. With the elimination of school to work funds, a number of activities will no longer be available at Sweetwater. Given the value they place on the program, the ISD will maintain some activities including job shadowing and career fairs. The Sweetwater ISD also implemented an exemplary program that would be of value to other regional ISDs. They offered their students a one day hospitality program to teach them how to talk about their community and interact with visitors. Their objective was to support local tourism and take advantage of coliseum events. Their future plans are to stress dual credits and more vocational agreements, to increase student opportunities.

CATE options include agriculture, BISC, Family and Consumer sciences, marketing and technology education (shop, drafting including computer applied design). Other technical courses available are related to web technology. Articulation agreements are in place with WTC, Ranger, Cisco as well as TSTC.

Academically, Sweetwater is one of the weaker ISDs examined. It received only an academically acceptable rating from the accountability system. Notably, exit surveys from the High School report that the majority of students (82%) have plans to attend college.

### *Snyder*

The Snyder region benefits by having WTC, a community college, that contributes much to the community. It is however predominantly a transfer school, preparing kids to move on to higher degrees or more advanced training rather than a workforce training institution feeding into the local economy. Of a total of 1,407 students enrolled in Spring

2002, 1,226 (87 percent) students are on an academic track. The most popular majors are secondary education followed by elementary education. To support their academic or transfer focus, WTC has a Pathways partnership with Texas Tech to create smooth transitions for those students. Texas Tech sends guidance counselors and financial aid advisors to WTC monthly. They have an advanced distance learning capacity, with 20 percent of their courses currently available through multiple DL channels. (See main report for more on WTC's DL efforts).

However, what they do pursue in the workforce area, they do well. They have some of the strongest relationships with the local business community, and have been surveying their needs since the 1980s. This interaction leads to regularly shifting curriculum and course options to meet current needs. WTC has been building capacity in the marketing area, increasing its enrollment. Of the vocational courses, the largest classes are early childhood education (22 graduates, 29%), nursing (21 graduates, 28%) and computer business technology (14 graduates, 18%). Also available are golf landscape technology, criminal justice, auto mechanics and horticulture and welding.

WTC is highly involved in the community. They have programs dealing with youth generally and at risk, have a regular camp that exposes both students and parents to WTC options, and have put the One Stop satellite office in a storefront location downtown to ensure high visibility and availability to the community.

Snyder ISD benefits from its proximity to and relationship with WTC. The High School has concurrent enrollment in the following areas: networking (students work toward networking certificate), welding, EMS, government, English, psychology, sociology and 4 classes in computer graphics. WTC also offers an upward bound grant to deal with youth at risk in summers and some classes. Snyder ISD is fairly strong in student career preparation, providing a Career Pathways manual, tech prep, distributive education, and career days. Their efforts are seriously weakened by the limited amount of work experiences available in Snyder. While their Distance Learning lab is up and running, they are hampered from making extensive use of the tool because it employs a block schedule. Though this structure increases the ability of students to pursue extra courses, included advanced academic courses, it is only one of three schools that uses block scheduling, making it hard to coordinate distance learning opportunities. (Abilene High School and Cooper High School, also in Abilene, are the other two schools using block schedules and they have limited DL Campus vis-à-vis other ISDs.)

Snyder received a recognized rating from the state but it will be one of the most challenged by the movement to increased academic standards. Only 30 percent of students pursued the recommended track in that latest statistics available. And the numbers are extremely challenging when you break them down by student groups: African-American (11.1), Hispanic (12.5), White (41.5), and economically disadvantaged (10.6). Similar differences appear in the TAAS tests, with district improvement rates between 1994 and 2001 below state averages.

## *Haskell*

The Haskell region lacks institutions of higher education located within its borders, but most ISDs have relationships with nearby colleges, even if they fall outside the region being examined. Consequently, this section will look at two ISDs, Haskell and Stamford.

Haskell is one of the ISDs that views itself as having a strong vocational program including school to work (career awareness and business partnerships), career testing and on the job training. They have a strong agreement with Vernon College that allows local residents to get an A.D. in Haskell. They also provide access to some upper level courses from Mid-Western. Haskell will be starting a GED class, which is a severe lack in the region.

Haskell is marked by high levels of interaction between the ISD and the economic development community specifically and the community generally. School administrators are on the Chamber and Economic Development Agency board and the strategic planning committee. All administrators are required to be a member of at least one civic organization. As a result, the school is very active in the community and the community is very engaged in the school. Haskell has a large scholarship program for a little community. Any one who wants to enter higher education can receive some level of assistance. Every civic club provides scholarship funds, as does a local educational foundation. They also provide mini grants for innovative teaching. Finally, since businesses are great supporters of the school, the ISD has an informal policy to shop locally when it can to support the local business community.

Haskell tries to take away all excuses for dropping out and has one of the smallest drop-out rate (.3 %) of all the ISDs examined. They provide in-house day care for employees, and students and run WIA and youth activities. The ISD is implementing a leadership course in the High School and two in the Junior High to build social skills and good work attitudes in the school curriculum. All students get a free breakfast in the morning. They are also part of a cooperative to provide an Excel high school for disadvantaged kids, which offers alternative approaches to learning to better engage children.

Haskell has room to improve in the area of academics. Rated academically acceptable, only about half the students (48.7%) follow the recommended route. When you look at student populations, the data suggest more challenges: White (61.5), Hispanic (27.3), and economically disadvantaged (26.1%). Although compared to other ISDs in the region, TAAS scores do beat the average.

The Stamford ISD, also in the Haskell sub-region, is the technology-in-school poster child for the region. Stamford has led the field in the introduction of infrastructure as well in the application of technology in the classroom. The ISD has five distance learning labs that are used for virtual field trips, High School to High School Teaching, and college dual credit courses with WTC, University of Houston, ACU (to provide graduate courses for teachers), Amarillo College, Vernon College and Texas Tech. The labs are also used for school board training and teleconferencing and plans are in the works for making it

available to the community. Notably, students maintain the technology infrastructure, which is a good training stepping stone for those with interest in an Information Technology career pathway.

Stamford started laying their infrastructure before the TIF grants were implemented, thus the initial labs and T1 lines were self-funded. Stamford also was the first ISD in the region to hire a technology coordinator. They use their available TIF grants to support updates and applications.

They are well ahead of the learning curve of how technology can be integrated into school systems. Currently, they are investing in ceiling mounted LCD projectors for teachers to teach off the Internet. They also are moving to a higher use of terminal services, which puts applications and power on the Internet that increases the use of older hardware. This also allows students to access both school information and the school's computing power when they work from home. It also helps maintain the value of older computers. They are thinking through how they may lend out old computers to students without access.

Stamford ISD also hosts a One Stop satellite office on one of its campuses, demonstrating that the school is a central point in the community. Stamford also has directed some attention to keeping kids in school. They have a good program, called PEP, for unwed mothers that pays child care and provides transportation, maintain vocational counselors in the school and are part of the Excel high school for disadvantaged kids cooperative.

Although the ISD has only been rated academically acceptable, it has one of the lowest drop-out rates of all the ISDs examined (.2 percent).

### *Eastland*

Eastland has two community colleges, Cisco and Ranger, to build its technology infrastructure. Like WTC, the majority of students (75%) in both schools are on academic tracks. Ranger offers the following workforce tracks: automotive technology, vocational nursing, office technology, welding, computer information technology and cosmetology. Working from two campuses, Cisco offers allied health, associate degree nursing, automotive technology, cosmetology, maintenance mechanics, welding, management, vocational nursing and office systems technology. As noted above, health related degrees and certificates are the hottest curricula chosen although the training for these takes place in Abilene. In Eastland, cosmetology and automotive technology have the most students, with 25 enrolled in each track this fall. Cisco recently eliminated fire technology, which TSTC has picked up, and electronics due to the limited number of area jobs in these fields, the difficulty in recruiting new students, and the prohibitive cost of equipment.

Eastland ISD has a high percentage of students going on to college or the military. According to the interviews, all students followed the recommended curricula in the current year. For the 2000-2001 academic year, where there is comparative data across

the ISDs, Eastland ISD has the highest number of students completing the recommended curricula (79.5%) and that rate held across student populations: Hispanic (72.7), White (80%) and has the highest rate among economically disadvantaged students (85.7%).

Eastland has a strong extracurricular program that helps keep students in school. Their drop out rate is 0%, the best of all the ISDs examined. Eastland is also one of the few school systems in the region that is growing rather than declining. Much of the growth is in the Hispanic population, suggesting that ESL will become a more important program.

Eastland also sees itself as ahead of the game in the application of technology. The county was able to pull five entities together to bid for TIF money that made a more community approach than other areas. However they did not predetermine the spending and allocation as they did in Coleman. The ISD had two tech coordinators and in one high school class, students are starting to develop web pages for local businesses.

In terms of career prep, the ISD does not have a school to work program but it does have a diversified career prep program where students follow a part time work schedule. They also take students annually to the Ranger job fair.

### *Breckenridge*

The Breckenridge region hosts TSTC-Breckenridge, a center of excellence for Environmental Science and one of TSTC's faster growing regional campuses. Breckenridge, known as a rural technology center, holds an important place in the community. To increase their capacity, this campus has made great strides in Distance Learning. Most popular courses are computer information technology (40%), vocational nursing (14%) and emergency medical services (13%). Environmental technology has seen a decline and only represents 10% down from 31% in 1996-1997. Students are mostly female (69.6%) and interviews noted a trend toward younger and younger students. In 2000-2001, about half the students were under 24.

The Breckenridge ISD received an academically acceptable rating. It has the highest drop out rate of all the ISDs examined (2.1%). Fifty-eight percent of students followed the recommended track. Like most other ISDs, there are higher differentials among the student populations.

Also located in the region, Albany ISD has been rated exemplary by the Texas accountability system and present a good regional model for integrating vocational and academic training. The ISD has vocational training opportunities and an active school-to-work program, the Plato program that helps kids who have failed a course get back on track. The agricultural track feeds most directly into the local economy. Career research is made a part of the regular curriculum, for example 8<sup>th</sup> graders prepare a research paper on careers. Because of its small size, the schools can give a lot of individual attention to the students and focus on their strengths. They build support into the culture for at risk students and entrepreneurship type efforts rather than establishing specific programs. About 85 percent of students move onto college after graduation.

## VI. The Appendix

**Table 1**  
**Regional Vs State Data**  
**Key Education Statistics, Region 14**

Indicator	Year	Region	State
TAAS (3rd grade) English	2000	84.1	77.1
	2001	86.6	78.2
TAAS (4th grade) English	2000	87.8	80.3
	2001	88.3	81.6
TAAS (5th grade) English	2000	91.5	85
	2001	93.6	88.2
TAAS (6th grade)	2000	87	81.5
	2001	89.6	82.7
TAAS (7th grade)	2000	86.1	79.3
	2001	91.3	84.3
TAAS (8th grade)	2000	73	64.6
	2001	76.9	69.2
TAAS (10th grade)	2000	73	64.6
	2001	76.9	69.2
TAAS (Cumulative) Pass Rate - Exit	2000	92.4	91.6
	2001	94.6	93.1
Annual Drop Out Rate (7-12)	99-00	1.2	1.6
	98-99	0.7	1.3
SAT/ACT Results % at/above criteria	2000	25.6	27.2
	1999	23.7	27.3
SAT/ACT % tested	2000	65.8	61.8
	1999	65.4	62.2
MEAN SAT Score	1999	1004	989
	2000	991	990
Mean ACT Score	1999	20.6	20.2
	2000	20.5	20.3

Source: Texas Education Agency

**Table 2**  
**Regional Vs State Data**  
**Resources Allocation by Program Area, 2001**  
**K-12, Region 14**  
**(in percent)**

Program	Student Enrollment		Teachers		Expenditures	
	Region	State	Region	State	Region	State
Bilingual/ESL	2.5	12.6	0.6	7.5	0.5	4.3
CATE	28.3	18.9	6.2	4.3	6	4.1
Gifted and Talented	7.4	8.4	0.8	2.2	1.1	1.8
Special Ed	17.3	11.9	10.6	9.9	13.5	12.6
Compensatory Ed	na	na	4.5	3.3	9	6.6
Regular Ed	na	na	75.8	70.4	69.9	70.7
Other	na	na	1.6	2.4	na	na

Source: Texas Education Agency

**Table 3**  
**TSTC Enrollment Data by Curriculum and Campus Fall Enrollment, 2000-20001**

<b>Curriculum</b>	<b>Sweetwater</b>	<b>Abilene</b>	<b>Breckenridge</b>	<b>Brownwood</b>	<b>Total</b>	<b>Percent</b>
Air Cond/Refrig Tech	37	NA	NA	NA	37	2.5
Associate Degree Nursing*	0	NA	NA	NA	0	0
Auto Body Repair	22	NA	NA	NA	22	1.5
Automation/Robotics Tech	44	3	NA	NA	47	3.2
Automotive Tech	26	NA	NA	NA	26	1.8
Aviation Mechanics	NA	48	NA	NA	48	3.3
Building Construction Technology*	NA	NA	8	NA	8	0.55
Computer Information Tech	56	44	50	85	235	16.1
Computer Network Electronics Tech	29	2	NA	NA	31	2.1
Computer Network Technology	68	89	0	48	205	14.1
Computer Science Technology	42	29	NA	0	71	4.9
Diesel Mechanics	38	NA	NA	NA	38	2.6
Digital Imaging Technology*	20	54	NA	NA	74	5.1
Drafting and Design Tech	37	24	NA	17	78	5.3
Electronics Tech	28	18	NA	0	46	3.2
Emergency Medical Services	33	59	16	NA	108	7.4
Emergency Medical Tech*	NA	NA	NA	19	19	1.3
Environmental Tech	NA	NA	12	NA	12	0.8
Health Information Technician*	12	13	NA	NA	25	1.7
Industrial Maintenance Mech*	NA	NA	NA	10	10	0.7
Industry Management Tech	0	NA	NA	NA	0	0
Mfg Engineering Tech	0	NA	NA	NA	0	0
Machining Tech	NA	NA	NA	13	13	0.9
Medical Records Transcription	NA	19	NA	NA	19	1.3
Non-Degree Seeking	93	12	17	10	132	9.0
Telecommunications Major	3	13	NA	NA	16	1.1
Undecided Majors	1	2	4	0	7	0.5
Vocational Nursing	99	NA	18	NA	117	8.0
Welding Technology*	NA	NA	NA	13	13	0.9
<b>Totals</b>	<b>688</b>	<b>429</b>	<b>125</b>	<b>215</b>	<b>1457</b>	<b>100</b>

Source: TSTC

\*Indicates new program

**Table 4**  
**TSTC Enrollment Breakdowns**  
**Gender and Age**  
**1996-1997 and 2000-2001**

Fall Enrollment By Gender	Sweetwater		Abilene		Breckenridge		Brownwood	
	96-97	00-01	96-97	00-01	96-97	00-01	96-97	00-01
Male	59.1	62.5	50.8	63.4	43.5	30.4	43.8	50.7
Female	40.9	37.5	49.2	39.6	56.5	69.6	56.2	49.3
<b>Age Breakdown</b>								
Less than 18	0.9	11.2	2.4	1.2	1.1	4.8	0	3.3
18-24	57.8	59.3	35.8	45.9	46.7	43.2	43	41.4
25-34	21.9	19.2	28.3	24	26.1	23.2	18.2	30.2
35-44	13.6	6.4	21.7	18.2	22.8	11.2	25.6	17.7
Over 44	5.8	3.9	11.8	10.7	3.3	17.6	13.2	7.4

Source: TSTC

**Table 5  
Individual ISD Data, Selected Variables, 2001**

ISD	Accountability Standard	Drop Out Rate	TAAS Reading	TAAS Math	TAAS Writing	% Completing an advanced course	% Taking SAT or ACT	% Scoring At or Above Criterion SAT/ACT
Abilene	Recognized	0.5	94.1	95	92.2	13.9	67.8	31.1
Albany	Exemplary	0.7	94.2	94.8	90.7	29.3	76.2	28.1
Breckenridge	Recognized	2.10%	91.4	95	88.4	13.4	80.6	29.1
Brownwood	Recognized	1	89.2	92.6	88.4	44.5	61.7	22.1
Coleman	Recognized	0.7	91.6	94.3	96.2	13.7	82.6	22.8
Eastland	Recognized	0	97.1	96.1	93.2	12.2	54.3	21.1
Haskell	Academically Acceptable	0.3	95.9	97.1	94.4	15.4	97.2	20
Snyder	Recognized	1.1	93.2	93	90.7	21.7	58.2	23.2
Stamford	Academically Acceptable	0.2	91.5	93.2	84.9	18	62	35.5
Sweetwater	Academically Acceptable	1.5	92.1	90.3	89.2	14.8	60.7	27
Average		0.6021	93.03	94.14	90.83	19.69	70.13	26

Source: Texas Education Agency

**Table 6**  
**Students Taking the Recommended High School Curriculum by Student Population**  
**2000-2001, Selected Regional ISDs**  
**(in percent)**

	Abilene	Albany	Brecken- ridge	Brown- wood	Cole- man	East- land	Haskell	Snyder	Stamford	Sweet- water	Average
All Students	46	60.9	59.7	58.3	75.3	79.5	48.7	30.6	55.8	All data	57.2
African- American	25.5	NA	NA	60	85.7	NA	NA	11.1	20	listed as 0	40.4
Hispanic	34.2	80	35	41.1	57.1	72.7	27.3	12.5	60	by TEA	46.6
White	52.3	58.2	66	63.1	78.6	80	61.5	41.5	59.4		62.2
Economically Disadvantaged	27.3	80	33.3	35	50	85.7	26.1	10.6	37		42.7

Source: Texas Education Agency