

From Logging to Logging On:
Developing the High-Tech Sector in the Brainerd Lakes Area

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Final Report

May 3, 2012

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EXECUTIVE SUMMARY

This report is the final product of a study undertaken by the Initiative Foundation and the University of Minnesota's Humphrey School of Public Affairs, in support of the efforts of the Brainerd Lakes Area Chamber of Commerce and the Brainerd Lakes Area Economic Development Corporation to develop the high-tech industry sector in the region. The purpose of this report is to assess both supply and demand—human capital and educational opportunities, and employer needs, to identify local resources to bridge any discovered gaps, and to propose strategies to attract and retain high-tech employers and tech-savvy employees to the area.

The regional economy has long depended on the area's abundant natural resources, which drive seasonal industries. The presence of several high-tech employers in the area has spurred economic development officials to further explore this sector to help diversify and stabilize the local economy.

Based on qualitative interviews with employers, economic and workforce development officials, and educators at both the K-12 and post-secondary level, this report finds that there is a shortage of employees with a high level of technical skill in the region. There is not, however, one common skill set needed by employers. As area schools, in particular Central Lakes College, are willing and able to adjust their curricula to serve evolving local needs, there are opportunities for partnerships among these entities.

This report proposes that the Brainerd Lakes Area become THE destination of choice for employers seeking workers with cutting-edge technical skills, and deliver on the region's reputation for loyal and hard-working employees. Partnerships between employers, schools, and economic development initiatives provide the foundation for this workforce; a highly trained workforce in conjunction with entrepreneurial incubators will develop the "critical mass" in the high-tech sector that will allow continued growth and prosperity.

This report outlines an action plan to achieve this vision. Stakeholders in the Brainerd Lakes Area should establish a strong community identity, highlighting to employers the region's robust IT infrastructure, and highlighting to employees the excellent quality of life. Employers, educators, and economic development groups should establish a more formal partnership to assess and track employer needs, connect them with employee candidates, and align higher education curricula. The area workforce should be provided robust career counseling, greater opportunities for advanced technical certifications as well as baccalaureate degrees, and competitive wages.

INTRODUCTION

This study was a joint effort between the Humphrey School of Public Affairs and the Initiative Foundation; here the Initiative Foundation serves as a convener supporting the efforts of the Brainerd Lakes Area Chamber of Commerce and the Brainerd Lakes Area Economic Development Corporation (BLAEDC) to foster economic growth in the region.

The Brainerd Lakes Area faces a number of challenges. Population growth is greater than the rest of the state, but so is unemployment. Area residents tend to be better-educated than the rest of the state, but earn fewer baccalaureate and graduate/professional degrees. This workforce has historically depended on the region's natural endowments, which are finite, and do not foster a diversity of employment options. The aforementioned population growth does not extend to young adults; with no nearby four-year colleges and lower prevailing wages, it is probable that many talented young people leave the area for better job prospects.

In 2011, BLAEDC identified the high-tech sector as a potential growth area for the local economy. Developing a high-tech sector in the Brainerd Lakes Area has the potential to both attract new employers and retain talented local employees, particularly young people entering the workforce. BLAEDC convened community stakeholders including business leaders, educators, and the Brainerd Lakes Chamber of Commerce. In that meeting, employers expressed difficulty finding qualified local candidates to fill high-tech positions, citing a lack of training programs in the area. The intent of this study is to assess the existing high-tech workforce supply and demand conditions, and to suggest strategies to overcome obstacles to developing a new "natural endowment" for the Brainerd Lakes Area—a thriving high-tech ecosystem.

Regional Overview

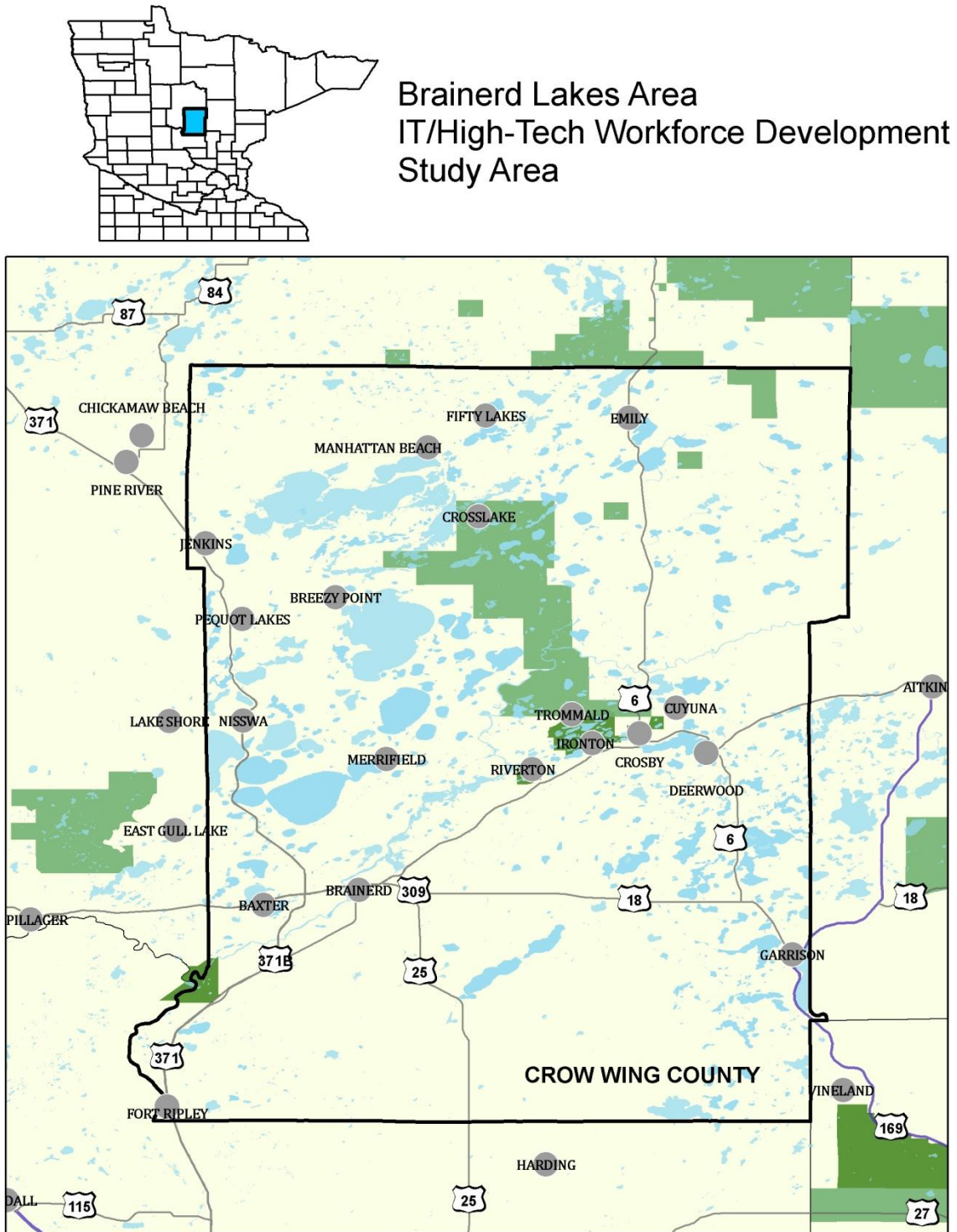
The Brainerd Lakes Area lies just north of the geographical center of Minnesota. Included in the region is the eponymous Brainerd and its twin city, Baxter; as well as the cities of Crosby, Crosslake, Nisswa, Pequot Lakes, to name a few. Just as a neighborhood tends to lack well-defined boundaries, so does this region. However, ambiguous geography creates complex statistical challenges, so this study defined the Brainerd Lakes Area as Crow Wing County, Minnesota.

BLAEDC generally refers to statistics for Crow Wing County when speaking of the Brainerd Lakes Area (BLA), which differs from the definitions of other study partners. The Brainerd Lakes Chamber of Commerce defines "the Brainerd Lakes Area" as all of Crow Wing County and portions of Aitkin, Cass, Mille Lacs and Morrison Counties. The Initiative Foundation service area includes these counties, and many more.

State and Federal data sources—the Minnesota Department of Employee and Economic Development (DEED) and the U.S. Census Bureau—also use different rubrics to define the region. The Census Bureau defines the Brainerd Micropolitan Statistical Area as all of Crow Wing and Cass Counties, but the study's authors believed outlier trends in Cass County related to unemployment, education, and poverty were likely to skew the data. Likewise, DEED Region 5 excluded those portions of Aitkin and Mille Lacs Counties considered relevant by the Brainerd Lakes Chamber, and includes two counties that are undoubtedly outside of the BLA.

But, the overwhelming majority of employers relevant to this study—high-tech industries—are located in Crow Wing County. As the unit of geography most inclusive of the desired area of inquiry, and owing to the usage by BLAEDC, Crow Wing County was selected as the geographical unit for statistical analysis.

Figure 1: Map of Study Area



Historical Background

The city of Brainerd is situated at the original Northern Pacific railroad crossing over the Mississippi River. Since then, the regional economy has always depended on its natural endowments; first for natural resource-based industries such as logging and paper, and then to tourism and hospitality.

Besides the Mississippi, the Crow Wing River flows through the region, and there are over four hundred lakes in the area, including the well-known Gull and Pelican Lakes. About 13% of the county's nearly 1000 square miles is water; much of the rest of the area is wooded, and there are two state forests in the region.

There is a historical and often contentious relationship between the region's geography and its economy. Brainerd city would not exist but for the railroad crossing, and was once home to the railroad's main shops. But the 1922 general railroad strike put nearly 1400 employees out of work. The main shops were ultimately relocated to Livingston, Montana, and railway employment has never regained its importance. The associated unemployment in Brainerd proper however, continues to linger.

Similarly, logging and paper mills were once an integral part of the area economy. In 1971, the Northwest Paper Company (now Wausau Paper) employed about 680 people; today that figure is closer to 185. By way of comparison, local "big box" retailers may employ that many people (and often more) at a single store. The railroad and paper mill examples show that over-reliance on a single economic sector can have profoundly negative consequences for a region, and illustrates a cautionary tale for another significant sector of the Brainerd Lakes Area's economy—tourism.

The Brainerd Lakes Area is also home to some of Minnesota's best known resort and vacation destinations—Grand View Lodge, Madden's Resort, Cragun's, Breezy Point, and Ruttger's Bay Lake. While the region remains a net exporter in this sector, as well as the associated retail activity, that share is declining. Further, this segment of the economy is fundamentally seasonal; the associated employment is mostly temporary high-volume, lower-wage. Tourism and hospitality are also particularly vulnerable to larger economic downturns.

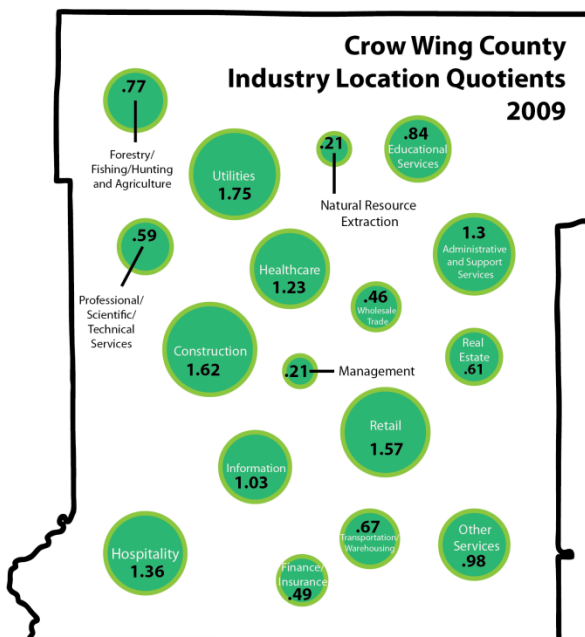
The region has long drawn on its strong natural endowments, but these endowments provide finite benefits. If the region is to remain competitive, the local economy must diversify, relying less on single sectors that are more vulnerable to economic swings. At the very least, the region should identify an as-yet untapped local endowment to build upon. The high-tech sector may present such an opportunity.

Local Economy

In the last decade, the local economy underwent significant changes. Simply put, new is replacing old. Historically strong sectors such as tourism and fishing have seen steep declines, while growth in other sectors tends to validate the growth observed in the overall population. There is economic growth, but in “new” industries, and the area workforce cannot expect the jobs to be in the same places they’ve always been.

Location quotient analysis reveals local strengths in multiple sectors, but illustrates change in several sectors with potential long-term implications for the local economy. In particular, the Accommodation and Food Service sector, and Forestry, Fishing, Hunting, and Agriculture Support sector have experienced significant declines from 2000 to 2009. The decline in the latter sector is especially telling.

The Brainerd Lakes Area, well-known for its fishing and resorts, went from a net exporter in 2000, to a net importer (negative location quotient) in 2009. During this time, the number of establishments in the sector remained constant and the first-quarter payroll figures declined slightly, but the annual payroll dropped by 44%. As the first quarter is the fishing and boating off-season and no firms have apparently exited the market, one may reasonably conclude that the global economic downturn has significantly reduced the number of people travelling to the area to visit resorts and fish.



But in the same period, the Brainerd Lakes Area enjoyed growth in the Construction, Education, Utility, and Administrative, Support, and Miscellaneous Service sectors. This growth too, has implications for the region. Modest growth in construction during an economic contraction implies that people and/or firms are moving to the area, an assumption borne out by population growth statistics.

Although the industry share in educational services is below the expected national average, significant growth in the sector suggest an increasing population of persons under age 25, as this age group are the usual consumers of these services.

Table 1: Regional Industry Mix, Location Quotients, Brainerd Lakes Area 2000-2009

Industry Group	2000	2009	Change
Utilities	0.94	1.75	0.81
Construction	1.45	1.62	0.17
Retail trade	1.60	1.57	(0.03)
Accommodation and food services	1.59	1.36	(0.23)
Administrative, support, and misc. services	0.40	1.30	0.90
Health care and social assistance	1.25	1.23	(0.02)
Information	1.13	1.03	(0.10)
Other services (except public administration)	1.12	0.98	(0.14)
Educational services	0.59	0.84	0.26
Forestry, fishing, hunting, and Agriculture Support	1.35	0.77	(0.58)
Manufacturing	0.89	0.76	(0.14)
Arts, entertainment, and recreation	0.75	0.75	0.00
Transportation and warehousing	0.45	0.67	0.22
Real estate and rental and leasing	0.75	0.61	(0.14)
Professional, scientific, and technical services	0.83	0.59	(0.23)
Finance and insurance	0.66	0.49	(0.17)
Wholesale trade	0.60	0.46	(0.14)
Mining, quarrying, and oil and gas extraction	0.16	0.21	0.05
Management of companies and enterprises	0.03	0.21	0.17

Source: US Census Bureau, County Business Patterns, 2000 & 2009

The change in the Utility and Miscellaneous Services sectors can potentially be attributed to the local growth and expansion of firms such as Ascensus and Northern Tool, which have expanded their operations in the Brainerd Lakes Area; and the build-out of the local fiber-optic infrastructure.

Most importantly, the shift in local shares across sectors means that the focus of the local economy is changing, and the job market's education and training requirements are changing with it. The Brainerd Lakes Area workforce will need to adapt to succeed.

Local Wages

Competitive wages are a significant challenge for the Brainerd Lakes Area. In particular, weekly wages in the Information sector lag behind the statewide average by about \$345, or over \$17,000 annually.

Table 2: Average Weekly Wages, Brainerd Lakes Area and Minnesota, 2011

Industry Group	Establishments	Brainerd Lakes Area	Minnesota	Difference
Total, All Industries	2126	\$621	\$931	(\$310)
Wholesale Trade	340	\$425	\$1,385	(\$960)
Utilities	286	\$875	\$1,849	(\$974)
Arts, Entertainment, and Recreation	208	\$254	\$533	(\$279)
Educational Services	202	\$666	\$764	(\$98)
Accommodation and Food Services	163	\$282	\$283	(\$1)
Real Estate and Rental and Leasing	130	\$991	\$956	\$35
Construction	122	\$777	\$1,000	(\$223)
Information	116	\$932	\$1,277	(\$345)
Management of Companies and Enterprises	109	\$387	\$2,471	(\$2,084)
Finance and Insurance	89	\$414	\$2,004	(\$1,590)
Other Services (except Public Administration)	75	\$893	\$501	\$392
Manufacturing	61	\$733	\$1,104	(\$371)
Retail Trade	61	\$612	\$461	\$151
Health Care and Social Assistance	49	\$234	\$785	(\$551)
Administrative, Support. and Misc. Services	38	\$736	\$599	\$137
Transportation and Warehousing	37	\$802	\$867	(\$65)
Agriculture, Forestry, Fishing and Hunting	11	\$1,323	\$553	\$770
Professional, Scientific, and Technical Services	9	\$696	\$1,379	(\$683)

Source: Minnesota DEED, Quarterly Survey of Employment & Wages, 2011 Q4

Unemployment

Regional unemployment has generally followed statewide trends, but has suffered worse seasonal spikes, and unemployment in Brainerd proper has been worse than the region as a whole. The figures indicate that the region relies heavily on a few, often seasonal sectors, and would benefit from a greater diversity of industries.

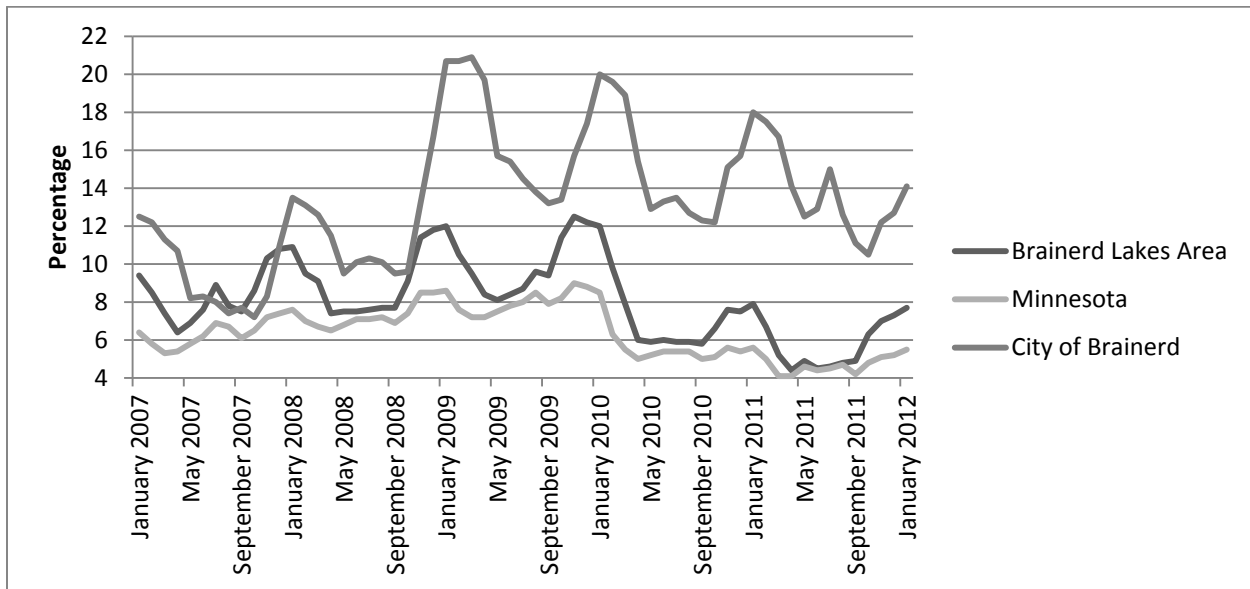
In the last five years, unemployment trends in the Brainerd Lakes Area have closely matched the rest of the state. The source data used here, which was not seasonally adjusted, showed that unemployment in the area during the spring, summer, and fall was usually within a

percentage point of the state average. However, the seasonal spikes in the winter were more severe, exceeding the statewide rates by at least three percent.

Nonetheless, the unemployment statistics for the City of Brainerd, which accounts for about 22% of the entire Brainerd Lakes Area workforce, show consistent double-digit unemployment in the same period. Since January 2010, the average monthly unemployment in the city has been at least 50% greater than the state average.

The figures suggest that in general, the Brainerd Lakes Area hasn't fared significantly worse than the rest of the state in most sectors, but that the City of Brainerd has done much worse. The seasonal spikes tend to indicate that employment in the area is dependent on seasonal industries such as fishing, tourism, and recreation. That is, the area lacks diversity in employment sectors to balance seasonal swings.

Figure 2: Unemployment Rate, Brainerd Lakes Area, 2007-2012



Source: Minnesota DEED, Local Area Unemployment Statistics, January 2007-January 2012

Population

The population of the Brainerd Lakes Area was 62,500 according to the 2010 US Census. In the preceding decade, the area population increased by 13.4%, and increased 24.5% over the decade before that. Contrasted with Minnesota as a whole, the area's population gains were nearly twice as large. Although the area's decennial population growth did not always keep

pace with the rest of the state, it has enjoyed a nearly 40% advantage. In the last fifty years, the area population increased over 94%, while Minnesota as a whole grew only about 55%.

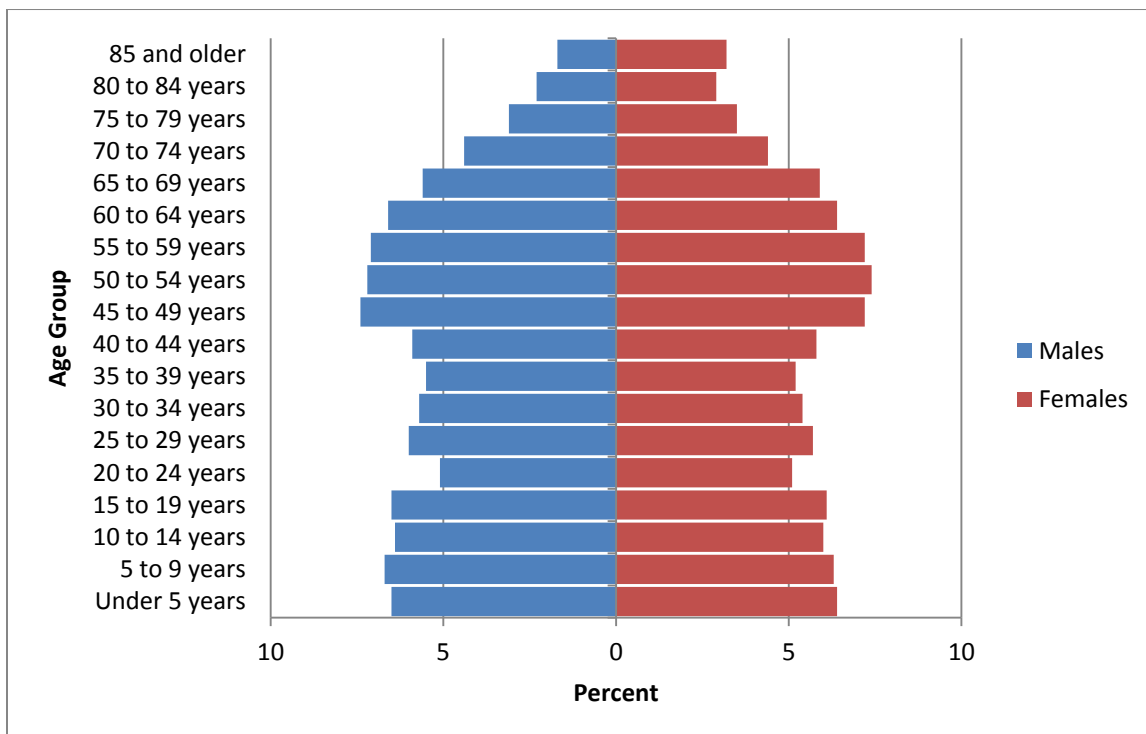
Table 3: Population Change, 1960-2010

Year	Brainerd Lakes Area		Minnesota	
	Population	Percentage Change	Population	Percentage Change
2010	62,500	13.4%	5,303,925	7.8%
2000	55,099	24.5%	4,919,479	12.4%
1990	44,249	6.1%	4,375,099	7.3%
1980	41,722	19.8%	4,075,970	7.1%
1970	34,826	8.4%	3,804,971	11.5%
1960	32,134	-	3,413,864	-
Percentage Change, 1960-2010		94.5%	55.4%	

Source: US Census Bureau, 1960-2010 Decennial Censuses

Segregated by age, the area population is distributed relatively evenly. However, there is a slight decrease from the 15-19 age cohort to the 20-24 cohort, suggesting that young adults leave the area after high school, which may indicate an unfavorable job market.

Figure 3: Population Pyramid, Brainerd Lakes Area



Source: US Census Bureau, 2010 Decennial Census

Education

The Brainerd Lakes Area has a robust educational system up to the two-year degree level, but lacks a four-year college. Over 70% of the population 25 years and older have achieved some educational attainment between a high school diploma and a four-year degree. The implication of this is threefold. First, the Community College system in the Brainerd Lakes Area is very important for training area employees. Second, the area is at a disadvantage relative to other parts of the state, as employers that require higher levels of educational attainment may not find the desired workforce in Brainerd. Third, there is the potential for employers seeking employees with mid-level education to successfully locate employees here.

In general, education attainment in Minnesota is higher than the rest of the United States; Census data illustrates that nearly 4% more Minnesotans have a Bachelor's Degree, and over 6% more have at least a high school diploma. The same data shows that the Brainerd Lakes Area (Crow Wing County) is quite close to the state trend for a high school diploma, but is significantly below the national average for a bachelor's degree. However, in Crow Wing County, the percentage of persons in this age group with some college but no degree, or an associate's degree, is higher than the average of either Minnesota or the United States as a whole.

Table 4: Educational Attainment Among Population 25 Years and Over

Educational Attainment	United States	Minnesota	Crow Wing County
Population 25 years and over	204,288,933	3,528,096	43,186
Less than 9th grade	6.1%	3.3%	2.4%
9th to 12th grade, no diploma	8.3%	4.9%	5.6%
High school graduate (includes equivalency)	28.5%	27.3%	31.0%
Some college, no degree	21.3%	22.7%	26.4%
Associate's degree	7.6%	10.0%	12.7%
Bachelor's degree	17.7%	21.5%	15.4%
Graduate or professional degree	10.4%	10.3%	6.5%
Percent high school graduate or higher	85.6%	91.8%	92.0%
Percent bachelor's degree or higher	28.2%	31.8%	21.9%

Source: US Census Bureau, American Community Survey, 2006-2010

THE BRAINERD LAKES AREA WORKFORCE: DEMAND AND SUPPLY

High-Tech Workforce Needs

State and National Trends

In a 2010 study on projected jobs and education requirements conducted by Georgetown University, it was projected that the share of U.S. jobs requiring post-secondary education will increase to 63 percent by 2018. Americans are becoming more educated as available positions require it. Manufacturing positions that were once trained on-the-job are now requiring some specialized training or certification. For the IT and high-tech sectors, post-secondary training is not only necessary, it is also constantly evolving.

According to the Minnesota Regional Workforce Assessment Project, the following four trends are anticipated past 2015 as the most influential and likely to require changes in education and training programs in the information sector. First, the continuing convergence of business and information technology will require more cross-functional skills of IT professionals. Second, as dependence on virtual business increases, more attention to security and compliance is needed. Third, innovations in technology will continuously require new skill sets for IT professionals. And fourth, as Minnesota's global markets for products, services and talent expand, the need for higher-level abilities such as critical and creative thinking, management and leadership of organizations and project teams, strategic thinking and business skills, will increase as well.

Fluctuations in this industry sector's needs greatly influence the workforce supply and demand balance. As employers' needs for certain skill sets change, the qualifications of employees must adapt to meet those needs in order to maintain and grow the economic stability of the sector and ultimately the region as well.

The BLA High-Tech Industry Sector

Both the US Census Bureau and the Minnesota Department of Employment and Economic Development (DEED) define the Information sector as, "establishments engaged in the following processes: (a) producing and distributing information and cultural products, (b) providing the means to transmit or distribute these products as well as data or communications, and (c) processing data."

The Census/DEED definition is adequate for establishments that are more or less “pure” IT, but does not account for firms that produce a good or service other than producing, transmitting, distributing, or processing data, but substantially rely on computer technology to deliver their goods/services. BLAEDC terms the latter group as “Tech Service Users.” Ultimately, both groups depend on employees with substantial technical education and abilities.

For that reason, this study will consider high-tech industries as those that manufacture or sell hardware and software; produce, store, process or distribute data and information; or substantially rely on information technology and services to deliver or distribute their product or service and a majority of sales occur outside the BLA. All firms within this industry require employees that possess or can achieve a level of technical skill higher than the average consumer.

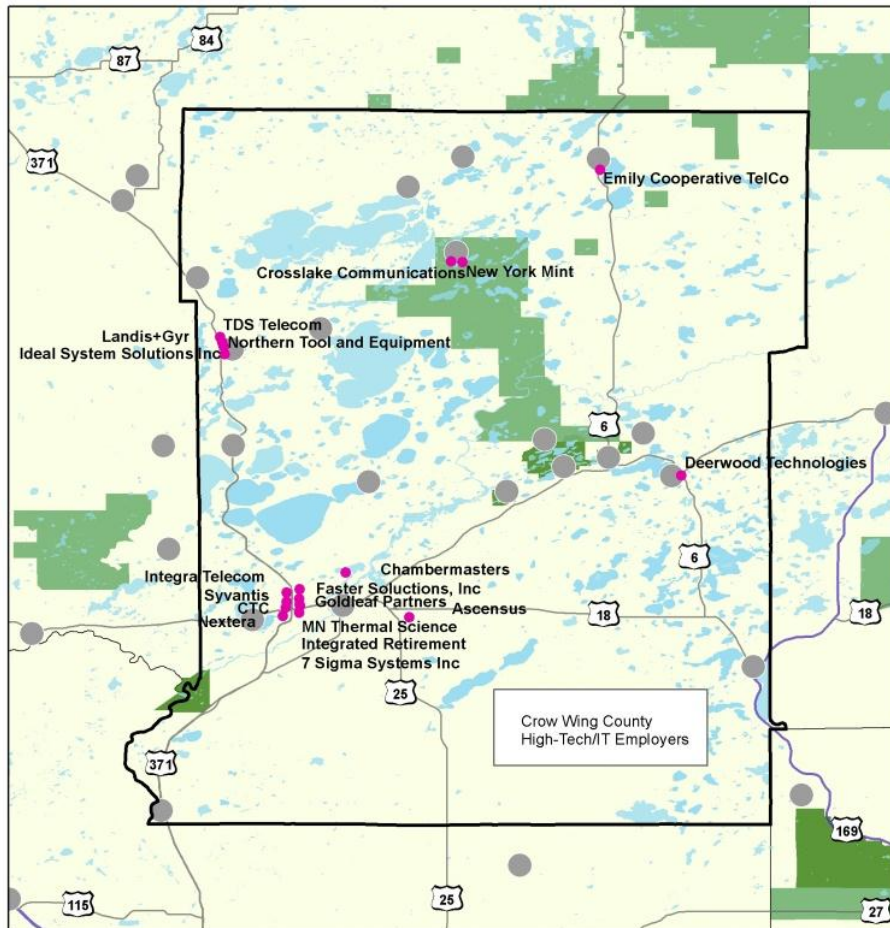
The BLA high-tech industry sector began in the late 1970s with companies like Hunt Technologies (now Landis + Gyr) and Universal Pensions (now Ascensus). CTC - Consolidated Telecommunications Company facilitated further growth by developing and installing fiber infrastructure. BLAEDC has identified over 20 companies currently in this sector that employ over 1000 people and anticipates that this sector will continue to grow and evolve. Therefore, BLAEDC has developed a four-tier initiative for growth in this sector including: expanding and attracting high-tech businesses, expanding local infrastructure by attracting a data center, branding the BLA as a technology hub and developing the local workforce to meet the needs of the high-tech industry.

Like past industry powerhouses - logging, the paper industry, and tourism - the BLA high-tech sector is a promising industry for growth as its end products are easily exportable. In fact, many of the high-tech sector employers like Ascensus and MicroNet hold their offices in the BLA, but their consumer base extends nation-wide. State and national trends indicate that potential for growth exists in the global market as well. At Minnesota Thermal Science, for example, 25 % of their business is from international markets, with Europe being its major international customer. A far-reaching customer base (nationally and internationally) is key to the survival of this sector and is key to the economic vitality of this region in the future.

BLA Employers' Needs

Eleven high-tech employers participated in this study by responding to questionnaires and participating in phone interviews. These companies ranged from providing retirement services recordkeeping and software design to telecommunications utility companies. As the types of companies differ, so do their needs.

Figure 4: Map of BLA High-tech Employers



Employers were asked to respond to a series of questions about their current and future IT workforce needs, what they feel the advantages and disadvantages are of conducting business in the BLA, and which training programs they would like to see offered in the BLA. Overall, employers indicated that experienced engineers, systems analysts and software developers, and skilled technical consultants were the most difficult positions to fill and that their IT-related positions typically involved a longer hiring cycle (of six months or longer). Employers also listed

the number of individuals needed for their high-tech positions, and in nearly every response, employers listed needing only one or two individuals to fill each role.

Table 5: BLA High-tech Employers’ Current and Future Workforce Needs

	Current Needs	Future Needs (within two years)
Certification, 2-year Degree	<ul style="list-style-type: none"> • Software Developers & Testers • Support Engineers • Software Rep • Network Engineers & Technicians • Provisioning • Web Design • Web Integration 	<ul style="list-style-type: none"> • Software Developers, Testers • Support Engineers • Network Engineers & Technicians • Provisioning • Web Design • Web Integration
4-year Degree	<ul style="list-style-type: none"> • Product/Business Analysts • Director of Software Engineering • Software Developers • Software Product Manager • IT Specialists for Retirement Accounts • Sr. Engineer: Mechanical Project Manager • Inside/Outside Tech Sales 	<ul style="list-style-type: none"> • Product/Business Analysts • Sr. Engineer: Mechanical Project Manager • Technical Writers • Inside/Outside Tech Sales • Bookkeeping, Billing, A/R, A/P • Financial Controller/Operations Manager
Master’s Degree or higher	<ul style="list-style-type: none"> • Senior Engineer Consulting/Sales Support 	<ul style="list-style-type: none"> • Senior Engineer Consulting/Sales Support

Source: BLA Employer Capstone Questionnaire, 2012

Employers also expressed a need for employees that do not have IT-specific roles, but whose role would require a higher-than-average IT knowledge base to represent their company. Many employers listed Customer Service Representatives, Sales Representative and Marketing Administrators as positions which require IT knowledge.

Table 6: Employers’ Perceptions of Conducting Business in the BLA

Advantages	Disadvantages
<ul style="list-style-type: none"> • Good/solid work ethic • Workforce is friendly, committed, “team players” • Low turnover rates • Continuing education programs offered through Central Lakes College • Strong K-12 school system • “Up North” lifestyle • Low stress due to lack of traffic, lower commute times, etc. • High quality of life 	<ul style="list-style-type: none"> • Workforce lacks IT experience and training (multiple employers’ response) • Local competition among employers for more qualified employees • “Up North” lifestyle less attractive to younger potential employees (multiple employers’ response) • Lack of skilled technical resources • Spouses are unable to find work • Poor housing market makes relocating to BLA more difficult

Source: BLA Employer Capstone Questionnaire, 2012

The majority of employers felt that the BLA is a great place to do business, but acknowledged that their desired candidate for their high-tech positions is a younger, tech-savvy individual who is less likely to appreciate the benefits of living in or near the BLA until they are “settled down” (i.e. married). When an individual is willing to relocate to the area, employers noted, it is often hard to sell their previous home or to find a job in the BLA for their spouse.

When asked which educational programs the employers would like to see available in the area, the responses varied by type of program and by educational venue.

Types of Educational Programs Requested by Employers in the BLA:

- Bachelor’s Degree programs in Finance, Marketing, Business or Communication
- Telecommunications Technician Training
- CCNA/Systems Analyst Training
- Engineering Programs
- Tech-Industry Certifications: current/advanced tech specialties in Network and Security
- Marketing/Sales programs specific to technical specialties
- Healthcare Information Technology Curricula
- Internet Protocol Training
- Internship programs
- “A really good four-year college”
- Computer Science taught in high schools
- 2 year IT/Server/Router/IP Program

Out of the eleven employers surveyed, not one, common educational track or training program emerged. Due to the diversity of the companies' industries, the sizes of the companies and the future plans of the companies, the surveyed employers have different needs in terms of the educational requirements of their workforce. The majority of those surveyed requested programs that could fall under the category of Computer Science, but even within that category, the requests were either for four-year degree coursework or specific industry certifications.

Ultimately, employers feel that their high-tech workforce needs are not being met by the local BLA population and they find it difficult to recruit talented potential employees to the area. To meet their current workforce needs, several employers indicated that they have begun to relocate some of their IT positions to other branch offices located in the Twin Cities Metro area or in other national branch offices. Others are hiring consultants to complete the necessary work, at a greater expense than that of a full time employee. One employer has also indicated that their high-tech operations may relocate to the Twin Cities Metro area if their workforce needs aren't met. This is extremely detrimental to the goal of developing the high-tech sector in the BLA.

"The workforce is generally OK at a non-professional level, but not at professional level...I am fairly certain that I will give up and start hiring staff that work remotely from the Twin Cities Metro Area."

– BLA Employer

While it is likely that if certain training programs were offered locally, some students may not leave the area to obtain an education, it would not guarantee that these students would attend or would remain in the region after completing the programs. And, as there is not one emerging sought-after qualification that is common to all or most employers, there is not one training program to recommend. Recognizing that local educational institutions cannot create individual training programs for each employer who may only need one or two individuals with those qualifications, it is critical that employers and educational institutions convene to address the issue of developing a qualified BLA workforce together.

Technology Education and Human Capital

Training the Future Workforce

Figure 5: Public School Districts in the BLA

The BLA's existing education infrastructure consists of three major school districts (Pequot Lakes, Crosby Ironton, Brainerd) and Central Lakes College, a community college with locations in Brainerd and Staples. Wadena Technical College is about 50 miles from the area, and Pine Technical College is over 100 miles away. The nearest four-year institution is St. Cloud State University, which is 60 miles from the BLA.



High School Technology Programs and Bridges Academies

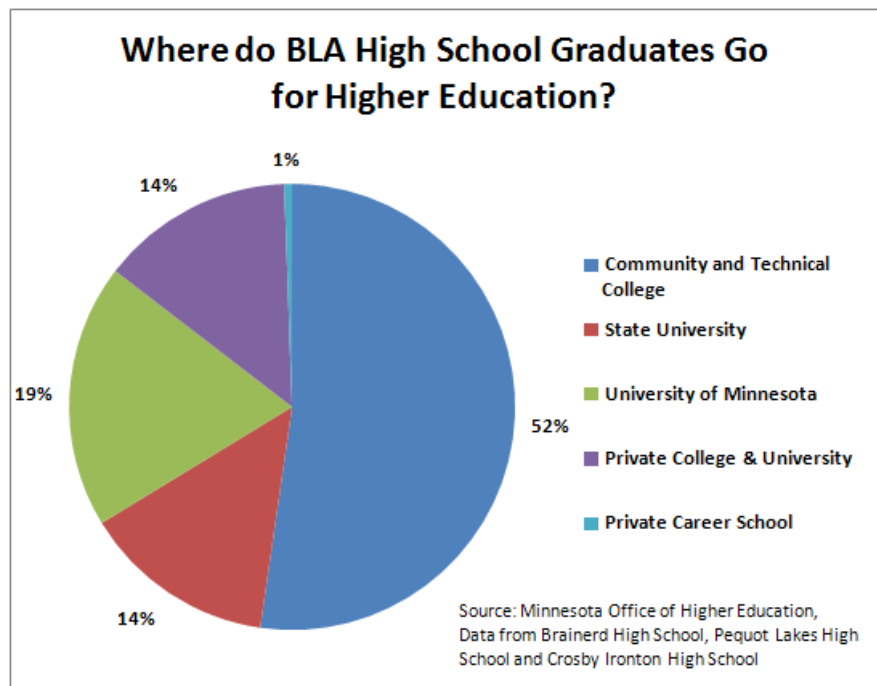
Throughout the three school districts, basic technology and computer courses are offered. Brainerd Public Schools enjoys a strong pre-engineering program that students may begin in middle school. This program is popular among students. Another program that is currently being piloted at Brainerd High School is a “help-desk” certification where students staff a support center for other students with technology issues. Brainerd High School previously offered Cisco certification, but it was discontinued. District curriculum and IT representatives from Brainerd expressed that their ideal technology curriculum would include Cisco and Apple system classes, along with more advanced graphic design and business technology opportunities.

BLA high schools in all three districts reap the benefit of the Bridges Career Academies and Workplace Connection. The Career Academies offer an opportunity for high school students to earn college credit while gaining valuable work experiences. The Career Academies are a sequence of courses focusing on career pathways that begin in high school and are taken for dual college and high school credit. Curriculum is developed through collaboration with Central Lakes College instructors, high school instructors and industry representatives.

The Workplace Connection, coordinated by the Brainerd Lakes Chamber, is an intermediary between schools and business to integrate work-based learning through a Career Exploration Day, Job Shadowing, and Internships. Currently Bridges Academy has programs in nursing, health sciences, business administration, criminal justice, information technology and manufacturing. High-tech employers may use this opportunity to connect with high school students through internships and career mentoring. However, in a discussion with Bridges staff it was noted that the high-tech program was the least utilized of the career tracks.

Figure 6: BLA Graduates’ Post-Secondary Destinations

Upon high school graduation, if students opt to stay in the area, many attend community and technical colleges in Central Minnesota including but not limited to Central Lakes College, Wadena Tech, St. Cloud Community and Technical College and Pine Tech. The BLA also experiences the effects of “bright flight,” when talented students leave the area to attend a post-secondary institution and either do not return, or return later in life.



Although the area lacks a four-year college, the community college system plays a crucial role as a site of collaboration, education and innovation. According to Stuart Rosenfeld and Erik Pages, community colleges can be sites of entrepreneurship and innovation, specifically if the institutions offer programming relevant to an area industry. Additionally, they suggests that community colleges should develop curriculum across several content areas to ensure students in specialized technology careers are able to function in a broader business context or company setting. In the BLA context, two-year institutions such as Central Lakes College can serve the community in this capacity by offering technology programs that meet the evolving needs of the high-tech industry.

The table below provides a brief overview of the number of students that received high-tech related degrees in the 2010-2011 school year in the area surrounding the BLA:

Table 8: 2010-2011 Degree/Certificate Completions in High-tech Fields

	Central Lakes College - Brainerd	Minnesota State Community and Tech*	St. Cloud State University	St. Cloud Technical and Community College
Communication Technologies/Technicians and Support Services	29	73	218	1
Computer and Information Sciences and Support Services	17	181	35	47
Engineering Technology and Engineering-Related Fields	33	36	71	126

*Includes Wadena and Pine Tech

Source: Minnesota Office of Higher Education

Central Lakes College is an institution of over 6,000 students, so these degree completion numbers indicate a low percentage of that student body. High-tech related programs at the college are not as popular as others such as health care and business administration-type courses.

Central Lakes College

With the absence of a four-year college in the BLA, Central Lakes College (CLC) is a major resource for post-secondary training for the community. CLC serves the seven-county area of Central Minnesota, with 6,000 students and 300 employees spread out across two campuses in Brainerd and Staples. 70 percent of students at CLC are first generation college students, indicating a trend toward higher education in comparison with previous generations in the BLA as well as a growing educated workforce.

Technology Courses Offered

In the high-tech field, CLC offers four Computer Technology programs at the Brainerd campus: Computer Information Technology A.A.S., Computer Network Administration A.A.S., Computer Support Specialist Diploma and Help Desk certification. The faculty interviewed explained that there are two tracks degree students can take either the Information Technology (CIT) route or the Network Administration (CNA) route. The CNA program is the more rigorous of the two, and provides greater opportunity for career growth outside of the BLA. The computer programs are evaluated annually by a tech advisory committee made up of CLC faculty, administration and over 15 local businesses, including tech-focused companies such as Ascensus and Landis + Gyr.

Additionally, CLC offers basic computer courses that are needed for other degrees. Generally these classes include more community members that are not enrolled as students at the college. These courses, such as Emerging Digital, are quite popular and up to six sections of 24 students each are offered throughout the year. The breakdown of student demographics in the computer technology program is as follows:

Table 9: Students in Computer Technology Programs at CLC

Year	FY2007	FY2008	FY2009	FY2010	FY2011
# Students (Full Year Equivalent)	77.07	71.17	81.73	103.6	107.3
# Students (Unduplicated Headcount)	395	388	407	499	480

Source: CLC Enrollment Summary

Challenges Faced

CLC administrators identified a challenge in their computer technology course offerings and explained that since enrollments in specialized software courses dropped, they were unable to continue some programming. The technology programming at CLC is flexible and able to be adapted year by year in response to voiced community and employer needs. However, curriculum development can be expensive. For example, a Cisco certification program would benefit the employers in the BLA, but the start-up costs to implement such a program at CLC are significant. Cisco-certified trainers and computer faculty in general, are difficult to recruit.

Another challenge faced in the Computer Technology program at CLC is that their students are in high demand. When a qualified student is identified or recruited by an area company, he or she often opts to take a job before completion of the degree program, thus bringing the graduation rate of the program down.

CLC faculty would also like to see more meaningful dialogue between industry and academics to ensure both sides' needs are being met. A career services department was recently added to CLC, so this is one option to consider when determining how to make the connection between educational institutions and employers more effective.

Developing the Incumbent Workforce

Brainerd Workforce Center

Brainerd's high unemployment rate dates back to the 1920s. As legacy industries disappeared, small manufacturers somewhat filled the gaps in employment offerings. Now manufacturing is disappearing which combined with the economic recession have limited local economic opportunities. The workforce center has a business service specialist on staff who is available to reach out to local employers and brokerage employment contracts between employers and potential employees who may need additional training that CEP provides. The workforce center also offers services directly to the unemployed to try to get individuals back into the workforce as soon as possible.

Services:

1. Free Services: Individuals may use the center's computer lab to self-search for positions through online databases.
2. Dislocated Workers/Income-Based Qualifying Individuals: CEP offers one-day workshops for individuals to brush up their technical skills as well as basic computer instruction, although few individuals are coming in now with no computer skills. They also offer a multi-week introductory course to using computers as a job-seeking tool.

According to the workforce center, wages and benefits offered to these types of employees are often too low to be competitive with larger markets. Smaller firms tend to have very specific requirements because of their need for employees to "wear many hats" and that makes finding an employee much more difficult because they are searching for one person with skills that match the skills normally required for several separate positions. Smaller firms are also less willing to take on someone who would make a good employee but needs training in certain skills.

Small Business Development Center

CLC's Small Business Development Center offers resources at the pre-venture, start-up and established stages. Through services such as consulting, customized training, capital and loan resources, research and business plan development, the center aims to support entrepreneurship and economic growth in the BLA. While the services offered are available for small businesses in any sector, this service can be especially helpful to develop new high-tech businesses to grow capacity.

Through examining technology education programs and workforce development opportunities available, it is made clear that an infrastructure exists to close existing gaps and expand the high-tech sector in the BLA. By placing the employer's needs in conversation with education opportunities and an available workforce, we see that both stakeholder groups can benefit from a plan to develop the high-tech workforce in the BLA. CLC and area school districts are key players in educating the BLA, and will be crucial in further developing the workforce.

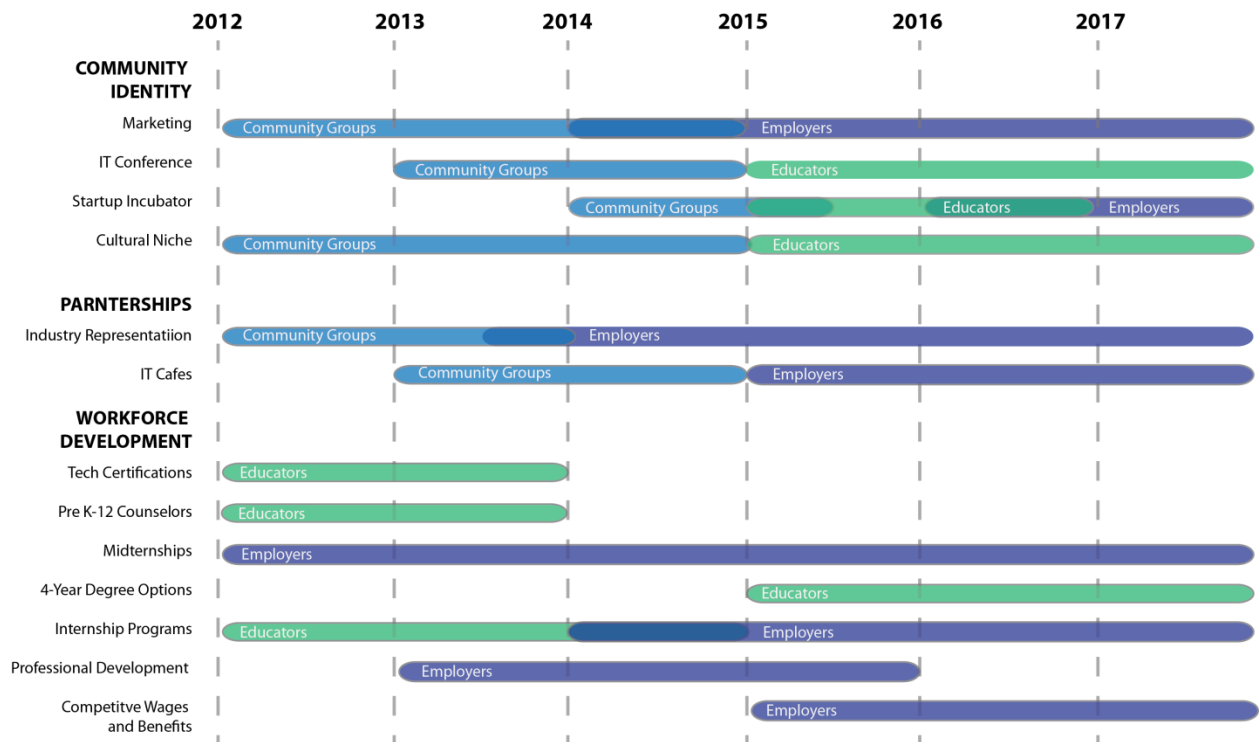
VISION

The Brainerd Lakes Area is THE destination of choice for employers seeking workers with skills to thrive in an ever-changing, innovative high-tech workplace and who deliver on the region's reputation for having a loyal and hardworking workforce. Opportunities for the workforce to learn skills desired by employers are accessible in K-12 schools, post-secondary institutions and as part of continuing, on-the-job training. This workforce is built through partnerships between educational institutions, area employers and economic development initiatives. As a result of a highly trained workforce and the development of entrepreneurial incubators, new businesses will develop in the Brainerd Lakes Area and allow the local economy to continue to grow and prosper.

ACTION PLAN

Building an adaptable workforce and further developing a high-tech sector will require commitment from educators, employers and community organizations in BLA. The following sections identify three focus areas for these stakeholders to build the community’s capacity for a tech-savvy reputation: Community Identity, Partnerships and Workforce Development.

Brainerd Lakes Area Action Plan Implementation Timeline



I.COMMUNITY IDENTITY: BLA develops a strong regional and national identity as a high-tech community by augmenting the current roster of high-tech/IT employers and expanding the available workforce.

Tools to Attract Employers:

In the next five years, the Brainerd Lakes Area will attract high-tech businesses by becoming known for its robust IT infrastructure and capable workforce. Specific steps to take in accomplishing this goal include:

- **MARKETING**

Advertise opportunities for existing companies to expand their current operations or move to the region by creating a marketing campaign that highlights the benefits of the Brainerd Lakes Area. These benefits include but are not limited to a fiber optic ring, shovel-ready sites, affordable utilities, and an available workforce.

- **HIGH-TECH CONFERENCE**

Host a national or state conference in a high-tech field or host an IT-related competition in the Brainerd Lakes Area to establish the area's interest and support of technology fields.

- **BUSINESS RECRUITMENT**

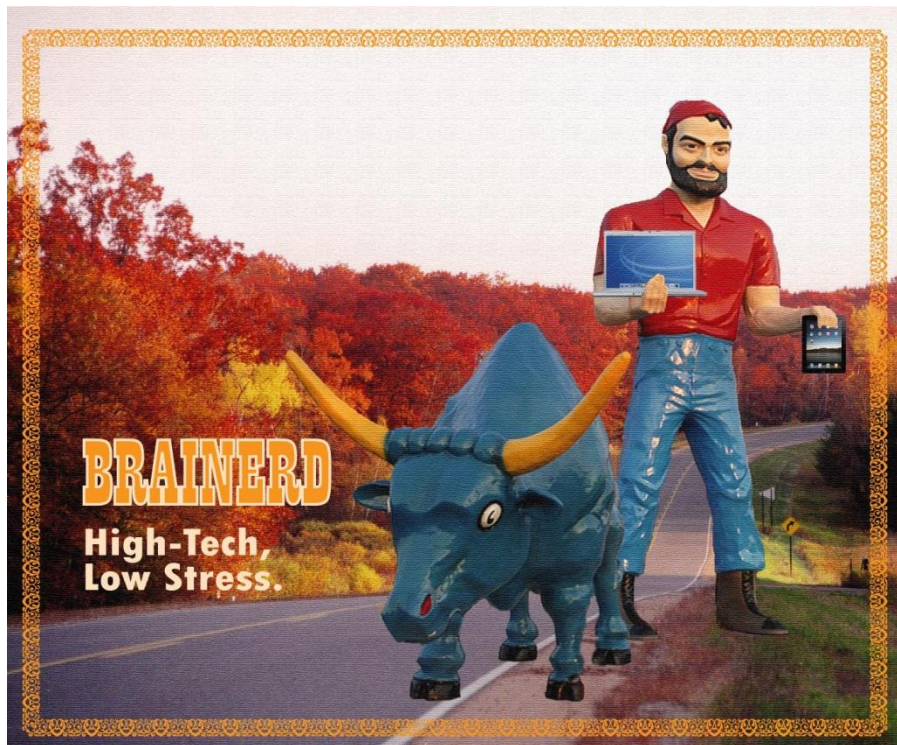
Partner with the University of Minnesota to encourage entrepreneurial activity by offering support to new businesses and entice new start-ups to locate their businesses in the Brainerd Lakes Area. Focus on the receptive climate and opportunities for women and minority owned businesses. The Center for Rural Entrepreneurial Studies is currently working on this goal in the Northwest part of the state. Connect with this organization and others such as the Minnesota High Tech Association or AdvanceIT to learn best practices.

Tools to Attract Employees: BLA is known to those seeking a great place to live and work as a desirable location with opportunities for employment in technical fields. Specific steps to take in accomplishing this goal include:

- **MARKETING**

Advertise and portray Brainerd as a desirable place to work and live:

- Highlight the “high-tech/low-stress” lifestyle of Brainerd in an advertising campaign. Two examples include an image of a twenty-something fishing and using a blackberry, or Paul Bunyan in an internet café.
- Create a Brainerd-branded one-stop shop for prospective employees to check for job openings on a centralized website.
- Leverage social media sites such as LinkedIn, Facebook and Dice.com (a tech-focused job search and recruitment resource) to spread the word about Brainerd.



- **CULTURAL IDENTITY**

Develop a focused cultural and lifestyle identity attractive to a younger, educated demographic aged 20-30. Ideas to consider:

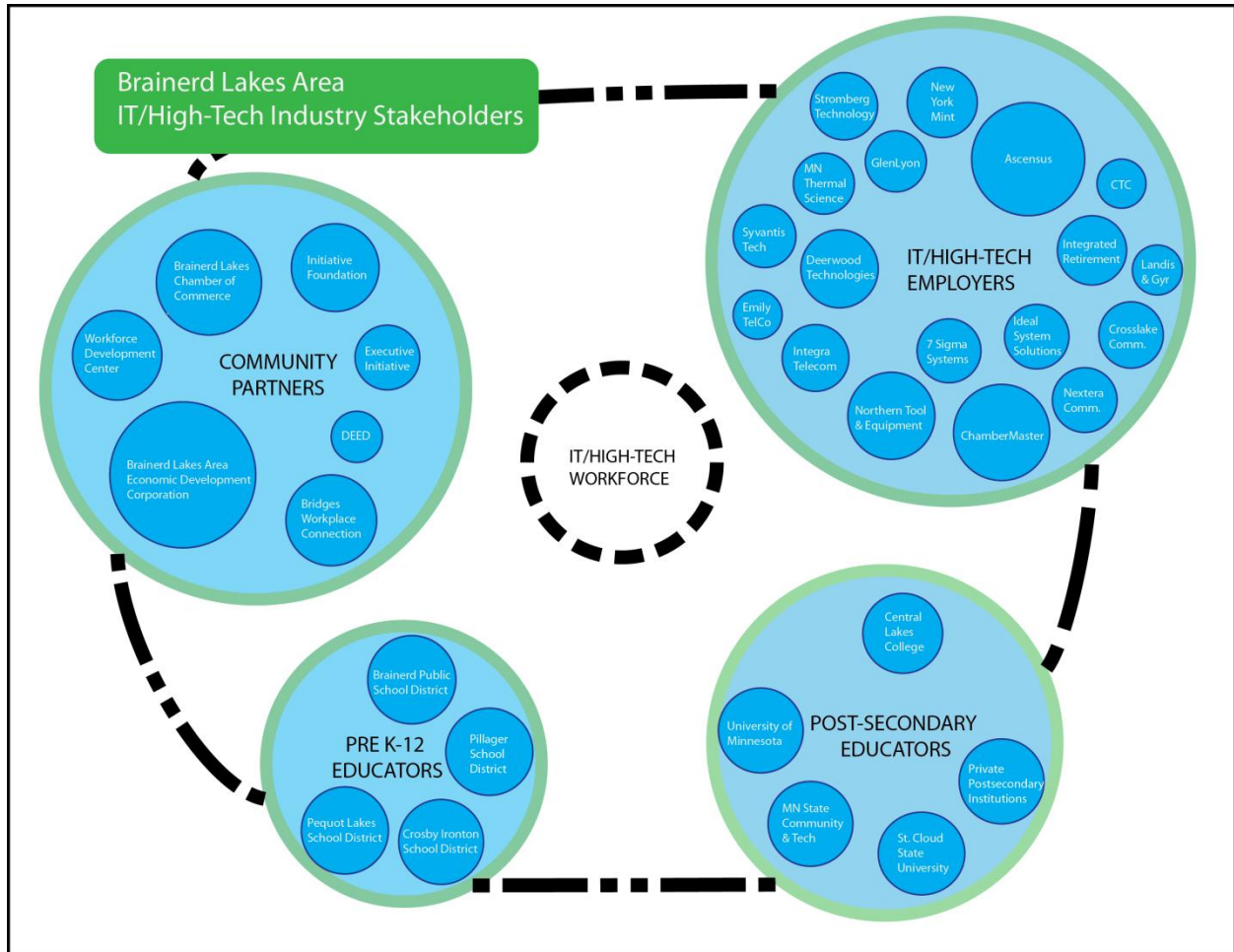
- Annual arts walk or concert series
- Food or beer festivals that showcase local businesses such as the Brainerd Brewery
- Capitalize on the popular fishing, hunting and outdoor sporting amenities of the area and use these to advertise to this demographic.

- **ATTRACT TALENT**

Expand existing or create new partnerships outside of the BLA to attract new or returning talent:

- Recruit students at four-year institutions outside of the BLA. Offer scholarships contingent upon staying and working in the BLA for a set number of years.
- Focus on candidates or individuals with organic connections to Brainerd. Recruit Brainerd natives near retirement age to return to the area to bring existing businesses to the area or start their own.
- Further expand the Executive Initiative to create a mentorship network.
- Increase presence at career fairs throughout the region.

II.PARTNERSHIP: Establish a formal collaborative Partnership with K-12 schools, Higher Education Institutions, Employers, BLAEDC and the Initiative Foundation to meet high tech workforce needs. The partnership should establish a mission statement with a central focus on the high tech economic development goals of the region.



- **INDUSTRY REPRESENTATIVE**

Create a position to facilitate and manage the partnership's goals, action items and track progress. The individual who fills this role should have high-tech industry knowledge, and work collectively with educators, employers and development organizations including BLAEDC and the Chamber of Commerce.

- **NETWORKING EVENTS**

Facilitate broader discussion between educators, employers and the greater BLA community:

- Organize quarterly IT Cafes for IT/High-Tech industry professionals to expand their knowledge of the industry while socializing with other professionals and prospective industry employees.
- Invite organizations such as the Minnesota High Tech Association or AdvanceIT to the region to attend events and further the discussion on ways to grow the sector.

- **CONTINUED ASSESSMENT**

Assign a responsible party to annually assess educator capacity and employer needs, as well as local and national IT trends to more quickly identify gaps and address them.

III. WORKFORCE DEVELOPMENT: Create a workforce in BLA that is effectively trained to take advantage of competitive wages in the high-tech sector and meet employer workforce needs.

The role of BLA K-12 schools:

- **COUNSELOR TRAINING**

School counselors should be informed of current and upcoming employment opportunities for graduating students interested in high-tech fields and advised of ways to disseminate that information to students with an emphasis on growing employment opportunities in those fields.

- **TECHNOLOGY INTEGRATION**

BLA preK-12 schools should continue to integrate technology in school curriculum so students are familiar with technology at an early age.

- Further develop Bridges Academies high-tech/IT programming and garner more interest and support from high-tech employers in the area.
- Explore partnerships with organizations such as GenesysWorks, a non-profit that offers scholarships to economically disadvantaged high school students to encourage the pursuit of IT or technology training.

The role of Higher Education Institutions in the Brainerd Lakes Area:

- I. **CERTIFICATION PROGRAMS**

Ensure open dialogue between faculty and high-tech employers above and beyond the curriculum advisory committee.

- Establish Microsoft/CISCO certification programs to train technicians.
- Gauge interest in re-establishing more computer science and technology associate degrees or create pathways for students interested in technology fields to gain the training they need.

I. LOCAL BACHELOR DEGREE PROGRAMS

Establish four-year degree programs in the areas of computer science, business and finance by creating affiliation agreements in partnership with outlying universities. Offer online course options to keep BLA students within the region while obtaining a four-year degree.

II. TECH INCUBATORS

As the high-tech business communities grows and as more students are choosing to work in the Brainerd Lakes Area, begin establishing tech incubators at local educational institutions to encourage student entrepreneurship using the aid and expertise of established business owners.

The role of Brainerd Lakes Area Employers:

● **ON-THE-JOB TRAINING**

Employers should identify immediate entry-level positions where on-the-job training could be provided so employees may be promoted within the company for more technical positions. Employers partner with BLAEDC or the Brainerd Workforce Center to provide trainings applicable to employees in many businesses with established career ladders.

● **INTERNSHIPS**

Create new or utilize existing internship systems that encourage students to return or relocate to the BLA:

- Several employers could pool resources to fund an internship or scholarship program that would expose students to high-tech employment opportunities in the area.
- Explore the STEM scholarship model offered by the MHTA that encourages undergraduates to pursue high-tech careers and intern in member companies. (Companies must be a member of MHTA).
- Explore the Sci-Tech-Sperience model offered by the Minnesota Science and Technology Authority. This model appeals to small-to medium sized businesses, as the business receives a dollar-for-dollar match to the intern’s salary, so both parties benefit.
- Consider “Midternship” programs for experienced individuals seeking a career change.

- **ESTABLISH CAREER LADDERS**

Employers should establish formal internal professional development programs for the continued training and development of entry-level employees to advance to higher level positions.

- **INCENTIVES**

As graduates from Brainerd Area high schools and community colleges become more technologically proficient, employers must develop increasingly competitive wage and benefits packages to retain an educated workforce. Some incentive programs to explore or expand include:

- Flexible working arrangement such as telecommuting or a results-only work environment (ROWE)
- Tuition reimbursement programs that will encourage employees to continue relevant technology education. Stipulations could be placed on a reimbursement program, including a set amount of time an employee must stay in role after tuition is paid.
- Paid time off or flexible scheduling for offsite technology training or professional development relevant to duties.

CONCLUSION

Employers in the BLA are clearly facing a challenge in meeting their high-tech workforce needs. As this problem can be attributed to multiple factors, no single solution can be recommended. While the addition of certain programs to area schools would likely retain more students in the region, it would not guarantee it. Further, since there is no single emerging, highly sought-after qualification common to all employers, there is no single training program to recommend. While local educational institutions cannot create individual training programs for every employer, they can still be quite responsive—provided that employers and educators assess these needs together.

To ensure the success of economic development initiatives in the BLA and the success of the high-tech sector in general, employers must be active participants in community efforts and local initiatives. This participation includes mutual cooperation towards the common goals of ensuring the long-term viability of the high-tech sector, and that sector's continued growth. Educational institutions also have a responsibility in regional economic development—remaining flexible and nimble. Expanding partnerships with employers to attract local students, and providing training opportunities are critical to the success of this industry sector.

Ultimately, successfully building a well-qualified, nimble high-tech workforce requires a long-term commitment from employers, educational institutions, BLAEDC, and the Chamber of Commerce. Just as the high-tech sector is marked by frequent change, necessary skill sets will change, and this study's action plan must be considered a long-term strategy. All stakeholders must commit to this plan long-term past the initial implementation, as ongoing assessments and regular adjustments will be necessary to keep up with an ever-evolving high-tech sector. Only then can this shared vision for the BLA's future as a high-tech leader be realized.

APPENDIX

Appendix 1: References

Interview List

Stakeholder Panel in Class	February 23
Sheila Havercamp, Executive Director, BLAEDC	March 1
Deerwood Technologies (via phone)	March 8
Lisa Paxton, Brainerd Lakes Area Chamber of Commerce	March 16
<u>Questionnaire and follow-up questions with Employers (via email):</u>	March 2

- Ascensus
- MicroNet (ChamberMaster)
- CTC - Consolidated Telecommunications Company
- Deerwood Technologies
- Integrated Retirement
- Landis + Gyr
- Minnesota Thermal Science
- Nextera Communications
- Syvantis Technologies
- Ideal System Solutions
- Emily Cooperative Telephone Company

Capstone Team Site Visit in Brainerd:

	April 5 & 6
Central Lakes College Administrators and Faculty	April 5
Jeff Wig, Dean of Enrollment and Student Services	
Suresh Tiwari, VP of Student and Academic Affairs	
Ron Houle, IT Faculty	
Dar Houle, IT Faculty	
Rebecca Best, Dean of Workforce and Economic Development	
Linda Holliday and Don Hickman, Initiative Foundation	April 5
Deb Lechner, Curriculum Dir. & Pam Dyson, IT Dir., Brainerd K-12 Schools	April 5
Stakeholder Check-in at Brainerd Chamber Offices	April 5
Steve Christiansen—Ascensus (Interview and tour)	April 5
Craig Nathan—Brainerd Workforce Center	April 6
Lisa Paxton and Sheila Havercamp	April 6
Mary Gottsch—Bridges Workplace Connection Director	April 6
Nextera Communications (via phone)	April 13
Margaret Anderson Kelliher- Minnesota High-tech Association	April 23

APPENDIX II: Annotated Bibliography

A number of existing studies and publications informed this study.

Help Wanted: Projections of Jobs and Education Requirements Through 2018

Georgetown University Center on Education and the Workforce, June 2010
Anthony P. Carnevale, Nicole Smith Jeff Strohl

A key finding of the study was that the percentage of jobs in the United States that will require postsecondary education has increased from 28 percent to 59 percent since 1973, and by 2018, that figure will rise to 63 percent. This study partly confirmed what many observers already accept as true—America’s middle class is disappearing. More accurately, it identified post-secondary education as the gateway to the middle class. The study also found that new hires will select occupations rather than industries, and will require specific certifications and training, and can no longer expect that entry-level positions coupled with on-the-job training will provide upward career and economic mobility.

Meeting Minnesota’s Workforce Needs: Information Technology Occupations in Minnesota

Minnesota Regional Workforce Assessment Project, April 2012

This study identified four “Mega Trends” that will shape information technology education and training. First, *the convergence of business and information technology* means that neither discipline can be treated as a discrete skill-set. IT professionals will find themselves in roles as business executives, and vice-versa.

Second, the ubiquity of information technology in all aspects of business demands *increasingly sophisticated and integrated security and compliance requirements*. Businesspeople must not only abide by the requirements, they must understand the technology associated with them.

Third, technology innovation will force IT education to be a continuous process. Academic programs must provide the fundamental knowledge and core skills to succeed in continuing education programs.

Finally, competition in global markets means that intangible skills such as leadership, communication, critical thinking, project management, and others are necessary for workers in IT fields. The stereotypical “computer nerd” cannot compete.

6 Markets, Infinite Opportunities

Initiative Quarterly Magazine, Winter 2012
Lawrence Schumacher

This piece highlights six the export trade of six Central Minnesota businesses. Included is Baxter-based Minnesota Thermal Science, one of several high-tech employers that participated in this study. Minnesota Thermal Science entered the German market in 2009, and now exports account for a quarter of the firm’s business.

Lessons in Self-Made Success: Programs Teach Business, Entrepreneurship

Community College Journal, December 2007/January 2008
Erik Pages and Stu Rosenfeld

Pages and Rosenfeld asserted that community colleges can play a critical role in nurturing entrepreneurship, particularly as formerly middle-class jobs such as factory work disappear. The authors also highlighted two key guidelines for effective community college programs. First, programs should apply industry context, as students tend to view themselves as members of an industry, rather than entrepreneurs. Second, there is no single best method of entrepreneurship education; programs must be tailored to a diverse audience and employ different modes of delivery.

Hollowing Out the Middle: The Rural Brain Drain and What It Means for America

Patrick Carr and Maria Kefalas, 2010

The authors examined the declining population of young adults in a small, anonymous Iowa town. While the Brainerd Lakes area and small Iowa town of with the assumed name of “Ellis” differ greatly in population, employment possibilities, and proximity to the cultural, retail, and educational opportunities

of larger urban centers, both areas face the same problem: the brightest students in their high schools are leaving town, and it's difficult to attract young, well-educated professionals to the region.

Carr and Kefalas categorized young people in Ellis as "Achievers", "Stayers", "Seekers", and "Returners". Understanding the challenges presented by the first and last of these groups is just as informative for Brainerd as it was for Ellis. "Achievers", the best and brightest of high school, are not only the most likely to succeed, but also the most likely to leave town and not return.

That the citizens of Ellis put the most effort into ensuring the success of those students who were least likely to stay in town was an irony not lost on Carr and Kefalas. In a similar vein, the Brainerd school system produces students that are well-prepared for college, including Ivy League schools, and its graduation rates and number of college-bound students are on par with the best of Twin Cities metro schools.

"How to Keep Me" — Retaining Technical Professionals

Industrial Research Institute, May 2001
James Kochanski and Gerald Ledford

In this article, the authors identify causes and remedies of turnover for technical employees. They suggest that turnover in this field is especially costly for employers due to project disruption and difficulty of finding backfill for specialized positions. A survey revealed that the types of rewards that lead to scientific and technical worker turnover are job content, direct financial, benefits, careers and affiliation with the company. The remedies they suggest include having strong managers, enriching jobs, fair compensation and a flexible work life.

This last suggestion may be most relevant to the BLA, as the location can be difficult to relocate to, so considering opportunities to work remotely could help in recruiting or retaining employees without having to relocate.

Supply or Demand, Make or Buy: Two Simple Frameworks for Thinking About State Level Brain Drain

Economic Development Quarterly, 2011
Paul Gottlieb

Gottlieb suggests that one of the main causes of brain drain is a mismatch of state versus local policy. Minnesota, for example, experiences a large flow of talent from universities but face a labor supply issue. Furthermore, he advocates for the common sense idea that measured brain drain of recent graduates is driven by the availability (or lack thereof) of jobs. In addition, he found that there is a significant negative relationship between state economic development spending as a percentage of gross state product and exported jobs. Recruitment is advocated as a way to make sure that the local market or innovation culture isn't considered "provincial" or inward looking. However, retaining is easier and cheaper than recruiting or attracting.

The Migration of Young Adults from Non-Metropolitan Counties

Gautam Hazarika and Bradford Mills, 2001

The article suggests that efforts to develop local labor and attract employers may be necessary to retained skilled young adults in non-metropolitan areas, and that migration flows of educated labor may influence further migration. There are fewer opportunities for high-skilled work in rural areas. The article was helpful in setting the context for understanding the labor market in smaller cities such as Brainerd.

APPENDIX III: SWOT Analysis

The following Strengths, Weaknesses, Opportunities, and Threats analysis considers the feasibility of further developing the high-tech industry and workforce in the BLA:

	Positive	Negative
Internal	<p>Strengths</p> <ul style="list-style-type: none"> ● The BLA is a desirable location for new businesses due to: <ul style="list-style-type: none"> ➤ Lower wages ➤ Network connections and fiber ring ➤ Low cost electricity ● Location desirable for data centers, due to the cold climate (one component of BLAEDC’s initiatives for the BLA high-tech industry) ● Strong support for economic development initiatives from BLAEDC, Chamber of Commerce and Initiative Foundation ● Potential untapped workforce exists in the area; training incumbent and displaced workers is a possibility. ● Strong educational infrastructure (K-12 district, community colleges, etc.) <ul style="list-style-type: none"> ➤ 6000 students at Central Lakes College, IT degree programs offered ➤ Bridges Academies program at 6 high schools ➤ CLC willing to create specialized programs if a need is identified by employers. 	<p>Weaknesses</p> <ul style="list-style-type: none"> ● Location less desirable for new businesses due to: <ul style="list-style-type: none"> ➤ High unemployment and overall lower educational attainment of the BLA population. ➤ Lack of international airport ➤ Distance from metropolitan areas ● Competition among employers for talented local high tech professionals detrimental to overall goal of growing this industry sector. ● Difficult recruiting employees to BLA due to: <ul style="list-style-type: none"> ➤ Generally lower wages than metropolitan area ➤ Fewer opportunities in BLA for family members ● Lack of a four-year college in the area limits the options of talented college-bound BLA students, requiring them to leave the area. ● Educational programs offered and high-tech/IT career opportunities in the area do not meet all employers’ needs. <ul style="list-style-type: none"> ➤ Bridges IT Academy less robust than other Bridges Academies

External	<p>Opportunities</p> <ul style="list-style-type: none"> ● External funding and resources for economic development initiatives possibly available through development grants or HUD grants ● Central Lakes College able to develop partnerships with four-year institutions outside of the Brainerd Lakes Area (UMD, St. Cloud, etc.) ● Internship opportunities available such as: <ul style="list-style-type: none"> ➤ Leverage Greater Minnesota Internship program (Coalition of Minnesota Cities) to recruit students from outside the area ➤ Explore internship programs within Minnesota High-tech Association (MHTA) 	<p>Threats</p> <ul style="list-style-type: none"> ● Businesses in this sector state and nation-wide are expanding to the global market; the BLA businesses need to further develop their export-driven high-tech economy in this way. ● Competition for resources, business and talent from comparable markets outside the region. ● “Bright flight”: Talented Brainerd students attend college out of state or out of the area and often do not return home for employment. ● High demand state and nation-wide for high-tech professionals; talented individuals can have their pick of employment options. ● Community College students in specialized IT or networking programs can be recruited outside of the area.
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APPENDIX IV: Employers

Employer	Type of Business	Location	Number of Employees
Ascensus	Provides retirement plan solutions and recordkeeping and administrative services to contribution plans and administers IRAs. Offers software and online solutions to help organizations educate their clients.	Brainerd, MN	497
CTC – Consolidated Telecommunications Company	Provides telephone, high-speed internet and digital TV support, in addition to providing IT support to local businesses.	Brainerd, Baxter, & Crosby, MN	57
Deerwood Technologies	Provides technology deployment and consulting/planning in addition to providing tech support to local businesses.	Deerwood, MN	8
Emily Cooperative Telephone Company	Provides telecommunications services to Emily, MN.	Emily, MN	9.5
Ideal System Solutions, Inc.*	Provides IT services such as: Enterprise systems & solutions, voice, video and data solutions, and IT professional services.	Pequot Lakes, MN	20
Integrated Retirement	Provides retirement plan expertise to financial organizations through training and development, IRA continuing education, and retirement plan content and collateral material.	Baxter, MN	Not Available
Landis + Gyr	Provides “smart metering systems” to help manage electricity metering. Partners with local utility companies to maximize energy needs.	Pequot Lakes, MN	185
MicroNet (ChamberMaster)	Develops management software and tools for Chambers of Commerce.	Nisswa, MN	30
Minnesota Thermal Science	Global provider of comprehensive cold chain logistic solutions for the safe transport of pharmaceuticals, tissue, biologics and blood.	Baxter, MN	Not Available
Nextera Communications	Provides “fixed wireless” internet service through WiMax, from one antenna to another, with connectivity over a 5-mile radius.	Baxter, MN	15
Syvantis Technologies	Specializes in networking infrastructure, systems management, office mobility. Is the largest tech services company in North Central MN.	Brainerd, MN	11

*Ideal System Solutions, Inc. no longer hires for tech positions in their Pequot Lakes office.

APPENDIX V: Current Technology-Related Education Programs in the BLA

BRAINERD HIGH SCHOOL (ISD 181): Brainerd, MN (Crow Wing County)	
Bridges Academies and College in the Schools (CIS)	<ul style="list-style-type: none"> • Applied Engineering Math Pathways (3 advanced math courses) • Engineering Project Lead the Way (4 engineering/electronics courses) • Business and Administration (4 courses)
NCRC Certificate	<ul style="list-style-type: none"> • Take three WorkKeys assessments: Applied Mathematics, Locating Information, and Reading for Information
Technology Education	<ul style="list-style-type: none"> • Pre-Engineering • Graphics

CROSBY IRONTON HIGH SCHOOL : Crosby, MN (15 miles from Brainerd)	
Bridges Academies	<ul style="list-style-type: none"> • Business and Administration (4 courses)
Technology Education	<ul style="list-style-type: none"> • Tech Prep Program (PSEO in partnership with CLC) • Computer Applications • Desktop Publishing • Electronics and Communication • Introduction to Engineering

*** Note: Pequot Lakes High School program data unavailable. Bridges Academies is present, however.*

CENTRAL LAKES COLLEGE: Brainerd, MN (Crow Wing County)	
Computing Technology	<ul style="list-style-type: none"> • Computer Information Technology (A.A.S.) • Computer Network Administration (A.A.S.) • Computer Support Specialist (certificate) • Help Desk Specialist (certificate)
Manufacturing	<ul style="list-style-type: none"> • Applied Engineering Technology (A.A.S.) • Engineering (A.S.) • Mechatronics (Diploma) • Robotics/Automated Systems Tech (A.A.S.) • Robotics/Automated Systems Tech (Diploma)
Additional Programs	<ul style="list-style-type: none"> • Small Business Development Center

WADENA TECHNICAL COLLEGE: Wadena, MN (48 miles from BLA)	
Computing Technology	<ul style="list-style-type: none"> • Network Technology Administration (A.A. S.)

PINE TECHNICAL COLLEGE: Pine City, MN (107 miles from BLA)	
Computing Technology	<ul style="list-style-type: none"> • Network Administration (A.A.S.) • Computer Programming (A.A.S.) • Computer Science (A.A.S.)

ST. CLOUD TECHNICAL AND COMMUNITY COLLEGE: St. Cloud, MN (60 miles from BLA)	
Computing Technology	<ul style="list-style-type: none"> • Computer Programming (A.A. S.)
Manufacturing	<ul style="list-style-type: none"> • Center for Manufacturing and Applied Engineering • Energy & Electronics • Machine Tool Technology • Mechanical Design & Manufacturing Tech. • Mechanical Design Technology • Welding/Fabrication

ST. CLOUD STATE UNIVERSITY: St. Cloud, MN (60 miles from BLA)	
Computer Programs	<ul style="list-style-type: none"> • Computer Engineering (B.S.) • Computer Science (Applied) (B.S.) • Technology Management (B.S.)
	<ul style="list-style-type: none"> • Information Technology Security (B.S.) • Network Modeling and Simulation (B.S.) • Minors: <ul style="list-style-type: none"> -Data Communications -Information Technology Security -Computer Networking and Applications