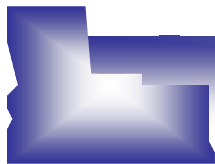


Broome
County
Plan for
Sustainable
Economic
Development



ACTION PLAN TWO
WORKFORCE ASSESSMENT
AUGUST 2002



theBCplan.com



THE BROOME COUNTY PLAN FOR SUSTAINABLE ECONOMIC DEVELOPMENT

WORKFORCE ASSESSMENT

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March 2002

AngelouEconomics (AE) is pleased to present the Steering Committee of the Broome County Plan for Sustainable Economic Development (the BC Plan) with this **Workforce Assessment**. This document is one of three reports that will lead directly to an economic development action plan for Broome County.

This report provides an overview of workforce-related findings from AngelouEconomics' extensive research on the Broome County economy. It also includes an inventory of workforce development programs. Our intent is to determine how prepared the region is to meet the workforce requirements of target industries. Our assessment is based on our experience with communities across the U.S. and our knowledge of the site selection needs of industry.

This report includes substantial information provided by local employers, the Broome-Tioga Workforce Investment Board (www.broometiogaworks.com), Broome Community College (www.sunybroome.edu), and Binghamton University (www.binghamton.edu).

All BC Plan reports, as well as much of the additional research underlying them, will be made available online at www.theBCplan.com. Thank you for your interest in the BC Plan.

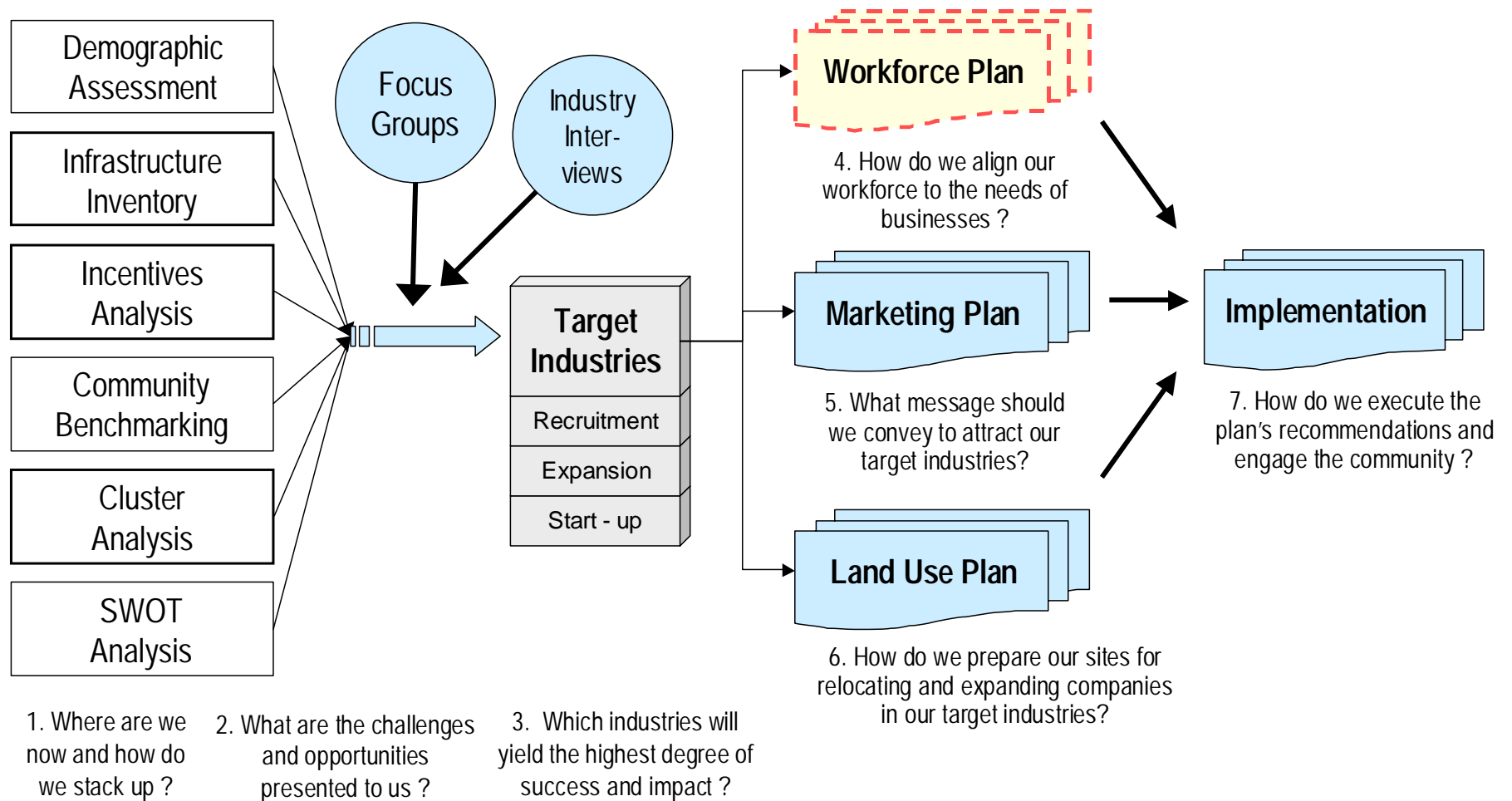


Angelos Angelou, Principal
AngelouEconomics

THE BROOME COUNTY PLAN FOR SUSTAINABLE ECONOMIC DEVELOPMENT

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The Broome County Planning Process



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Executive Summary

The purpose of this report is two-fold. First, it is to understand the workforce needs of Broome County's target industries. Second, it is to recommend activities that will prepare the local workforce for meeting the needs of industry targets and other high growth industries of the future. If cultivated to supply future growth industries, Broome County's workforce can become the core strength of the region for economic development efforts and marketing.

Workforce and economic development are closely linked. A strong workforce leads to business recruitment. A strong industry base generates a workforce that leads to entrepreneurship and long-term economic growth. Considering Broome County's current economic conditions, community leaders should make workforce development a top priority. A strong pool of workers could be the region's best tool for growing business.

The county's main concern has not been, as it has in many other communities, a lack of workers or record low unemployment. Broome County has an ample supply of workers as a result of downsizing. The region also contains a good supply of mid- to senior-level workers. The region must devote ample resources to build on these current strengths. Recommendations in this report, therefore, focus on three topics:

- (1) **retraining** existing workers to better match the needs of target industries,
- (2) **creating** a community environment that attracts and retains a young, talented pool of workers, and
- (3) **educating** the community about entrepreneurship and encouraging individuals to create home-grown businesses.

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With these three principals guiding future workforce development activities, Broome County will create core competencies that compete well against other communities in the region.

This report first examines Broome County's current workforce situation and then compares what is available to meet the skill requirements of its target industries. Next, the report contains employment and occupational forecasts to identify projected skill gaps in Broome County. By comparing these against workforce needs of target industries, one can create recommendations aimed at improving skills critical to future economic development. The report concludes with an inventory of workforce development programs currently available that could help create a target-ready workforce.



The following page contains a summary of the recommendations presented in this report.

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Summary of Workforce Recommendations	
I. Coordinate workforce activities with the goals of economic development	
<p>Recommendation</p> <p>Action</p> <p>Action</p>	<p>Workforce development should aim to meet the skills needs of target industries</p> <ul style="list-style-type: none"> - Support workforce development programs that train people in skills needed by target industries - Lobby state government to create targeted job training incentives
II. Retain individuals with target industry skills	
<p>Recommendation</p> <p>Action</p> <p>Action</p> <p>Action</p>	<p>Make Broome County an attractive place for a diverse population of young professionals</p> <ul style="list-style-type: none"> - Increase the stock of higher end multifamily housing - Launch a regularly-scheduled young professionals - Involve young professionals in community leadership
<p>Recommendation</p> <p>Action</p> <p>Action</p> <p>Action</p>	<p>Promote community-wide entrepreneurship</p> <ul style="list-style-type: none"> - Provide entrepreneurship education to retired, laid off, or in-transition workers - Involve the local media in running a series on entrepreneurship education - Employ BU's entrepreneurship students in future incubators - Form the Greater Binghamton Entrepreneurs' Association
<p>Recommendation</p> <p>Action</p> <p>Action</p> <p>Action</p>	<p>Make new people feel welcomed in the community</p> <ul style="list-style-type: none"> - Establish a mentor program - Create an international center/association - Create a "Welcome to Greater Binghamton" package for new residents
III. Form an intimate relationship between regional economic developers and educational leaders	
<p>Recommendation</p> <p>Action</p> <p>Action</p> <p>Action</p>	<p>Increase BU's participation in economic development</p> <ul style="list-style-type: none"> - Work together to solve joint concerns (e.g. retention of young people) - Expand internship programs between BU, BCC, and local businesses - Support R&D and other activities that compliment the needs of target industries
<p>Recommendation</p> <p>Action</p> <p>Action</p> <p>Action</p>	<p>Integrate BU and BCC in economic development marketing</p> <ul style="list-style-type: none"> - Internally promote BCC and BU workforce development programs that enhance targeted skills - Create print and online materials showcasing how BCC and BU meet target industry skills - Involve BCC and BU representatives in prospect meetings and marketing trips

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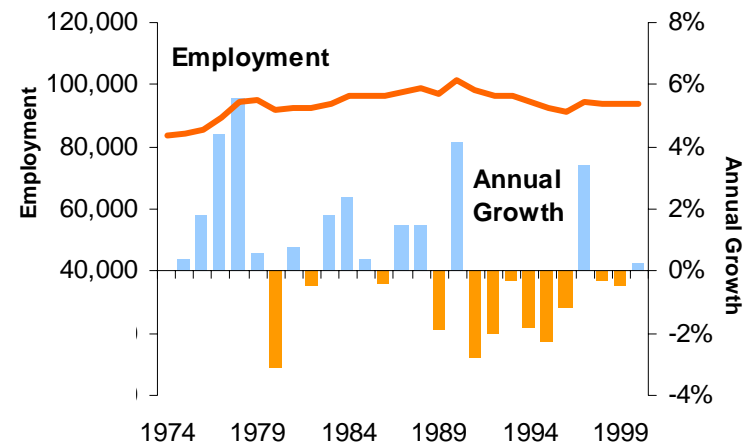
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Part One: Current Workforce Assessment

Broome County is one of the few communities to have experienced negative employment growth during the upswing of the late 1990s. The region's workforce has steadily declined over the past decade, contributed in part by significant layoffs at IBM and other major employers. The county still enjoys a large manufacturing base, now accounting for 19 percent of total employment. At its peak in the 1950s, manufacturing accounted for more than 50 percent of Broome County's employment. The national trend to shift from manufacturing to services industries has played a significant role in the county's employment losses.

From an economic development perspective, downsizing and the shift away from manufacturing create both a problem and an advantage for the county. It has increased pressure on workforce developers who have had to focus more on finding jobs for individuals than finding workers for expanding companies. It has also led to an overall negativity in the community's attitude, as witnessed in many of the consulting team's interviews and focus groups with the public.

Broome County Employment, 1974 - 2000



Source: New York State Dept. of Labor; AngelouEconomics

In another light, the workforce supply generated by recent downsizing places Broome County in a unique position. Few communities can boast an ample supply of semi-skilled and skilled workers. A targeted economic development initiative is critical to attracting businesses that will absorb these workers and stop their gradual outflow from the community.

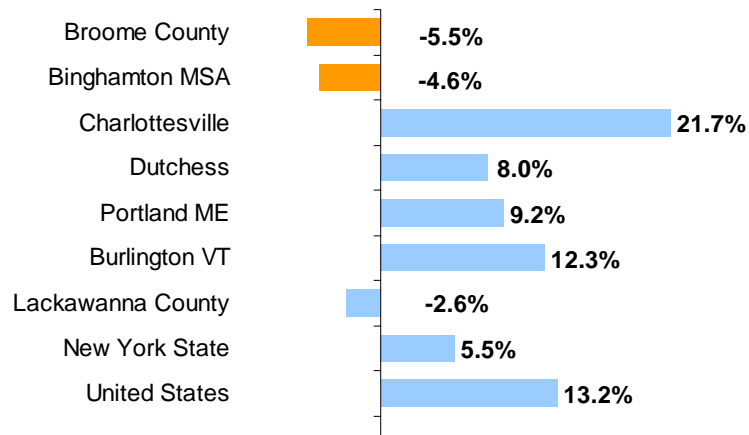
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Factors influencing current workforce

As discussed in the *Economic and Demographic Assessment*, the region's **population** has been on the decline since the 1970s. During the 1990s, Broome County's population dropped 5.5%, ranking it as the 13th slowest growing metro area in the nation. A majority of the population decline can be attributed to the out migration of individuals from the community. In addition, birth rates have been falling as a result of Broome County's above average age population.

Population Growth Comparison, 1990 - 2000



Source: U.S. Census Bureau; AngelouEconomics

Population trends run parallel to workforce. Lack of other opportunities has led many laid off individuals to leave the community – a “brain drain” that further limits the community’s ability to recruit new businesses and generate new tax base.

In addition to population, a number of other factors impact a region’s workforce. Education, income, age, and racial diversity are all workforce-related issues considered by high tech companies when selecting a new location.

In the 1990s, Broome County’s **educational attainment** was on par with the national average. Eighty-three percent of the region’s population has completed high school and 23 percent hold a 4-year university degree. The county is particularly strong in primary and secondary education. Binghamton and Johnson City ISDs, for example, outperform similar schools in the state in both math and English scores. The retention of graduates from BU and BCC, combined with the promotion of its quality school system to potential investors, will help the region meet the educational attainment of competitor regions.

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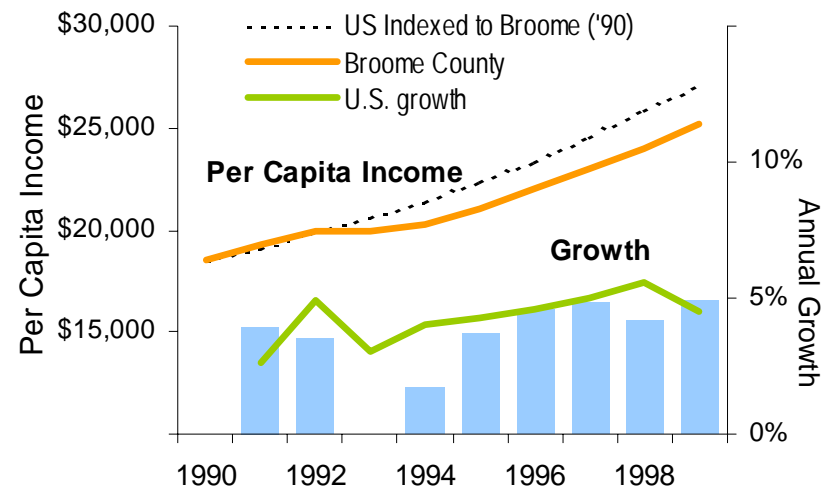
Income levels in Broome County have been on the rise but at a lower growth rate than the US average. In the 1990s, per capita income in the county grew 36 percent, while the U.S. experienced a 46 percent growth rate. Per capita income levels tend to be lower in Broome County than the national average for a majority of occupations. This can be viewed as an economic development strength, reflective of lower historical workforce demand but attractive to firms looking for a skilled supply of workers at a lower cost.

High tech companies search for communities with a thriving population within the 25-45 year-old age bracket. These individuals typically have the technical skills and risk tolerance that grow businesses.

The Binghamton MSA's **age distribution** skews toward the older end of the spectrum. The area's median age for 2000 was 38.1, significantly older than its peer communities. Reversing this trend requires a patient effort, but will result from the recruitment and creation of new businesses and the retention of college graduates.

Racial diversity is another workforce issue important to high impact businesses. High tech companies are interested in locating in regions rich in ethnic and cultural diversity so that they can then in turn recruit and retain a diverse workforce.

Broome County Income Growth, 1990 – 1999



Source: U.S. Census Bureau; AngelouEconomics

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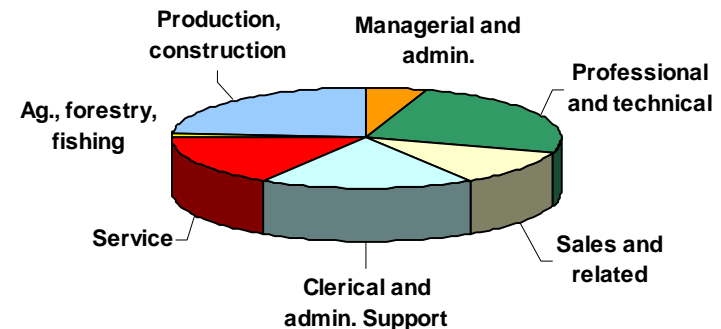
Broome County contains a higher than average ratio of white residents (91 percent), ranking it 121 out of 524 large U.S. counties.

Portions of the community are highly diverse, however. Within BU, 23 percent of the 2001 freshman class was Asian, 7 percent Hispanic, and 6 percent black. More than 900 international students representing 85 countries currently attend the university. Among other benefits, the retention of BU and BCC graduates will increase the diversity of the entire region.

Profile of current workforce skills

The Broome-Tioga region is in the midst of an occupational shift away from manufacturing and blue-collar positions toward the service sector. The concentration of production, construction, operators, maintenance, and materials-handling jobs in the region is much higher than the state average. According to the 2001 Broome-Tioga Workforce Development Survey, one out of every five non-farm jobs in Broome-Tioga is in manufacturing compared to one out of ten at the state level. Broome County's slower transition toward the service sector contributes to its current economic woes.

Jobs by Occupation, Broome-Tioga 1998



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Of the 110,000 jobs in the Broome-Tioga region, 25 percent are either professional or technical. This proportion is slightly higher than the state average of 24 percent. A majority of these individuals are employed by government organizations, Broome Community College (BCC), Binghamton University (BU), and local high tech employers. **This strong professional and technical base will be the foundation on which Broome County reaches economic revitalization.**

Workforce strengths and challenges

Numerous strengths and challenges related to Broome County's workforce emerged from the consulting team's interviews and focus groups with the community. A majority of those

interviewed agreed that the community's greatest strength was its ample supply of highly dedicated, skilled workers. Overall lifestyle was another frequently cited quality of Broome County, particularly aspects attractive to families such as

Strengths	Challenges
<ul style="list-style-type: none"> Strong work ethic, loyal employees Lower cost labor Excellent local schools No to low union activity Low cost of living, traffic, and crime Broome Community College Binghamton University Graduates have strong research and comp science skills Close proximity to large labor pool Connected via outstanding road access High quality of life, recreational activities History of technology and entrepreneurship Easy to recruit mid- and senior-managers 	<ul style="list-style-type: none"> Out migration of workers Low community self-esteem BU's limited involvement in economic dev. Low ethnic diversity Difficulty integrating new hires into community Difficulty recruiting / retaining young professional workforce Low supply of housing for young professionals Limited co-op programs between BU and local companies
Opportunities	Threats
<ul style="list-style-type: none"> Improve community-wide cooperation Target development at industries that will attract/retain skilled workers Create an environment that attracts young professionals to the region Create a young professionals' organization Involve young workers in community leadership Rejuvenate downtown areas Engage in regional marketing Include workers as a primary audience for the region's marketing message Beautify region's "gateways" 	<ul style="list-style-type: none"> Decreasing overseas costs pulls away manufacturing from BC Limited resources for shifting workforce from traditional manufacturing Continued lack of regional marketing Community in-fighting and uncoordinated economic development initiatives Increasing business costs at the state level Ignoring the needs of young professionals Limited involvement of private sector and higher education in economic development Continued outflow of new graduates and young professionals

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(1) high performing primary and secondary education, (2) ample recreation opportunities, (3) low crime, (4) low cost of living, and (5) the convenience of low traffic and close proximity to daily needs.

A frequently mentioned challenge was the difficulty in retaining qualified workers and the community's overall negative attitude. These challenges also pose a long-term threat to the community. On its present course, the outflow of workers, particularly recent graduates and young professionals, will damage the region. The aging trend will perpetuate, detracting high tech employers from selecting Broome County for expansion. The region's opportunities for entrepreneurship will be further limited, as a majority of start-up businesses are started by individuals in the 25-45 age bracket.

The region's strengths can be expanded into opportunities. A region-wide marketing campaign is Broome County's best opportunity. Another major opportunity is to engage in a long-term strategy to make the region more attractive to a young population. The retention of these individuals is critical to reversing the economic downturn. Several opportunities specifically addressed at young people emerged from discussions within the community, such as:

- involving young people in community leadership
- beautifying downtown areas to develop a central area for living, shopping, and entertainment
- initiating a young professionals' organization for networking
- improving recreation areas, such as hike/bike trails, that appeal to younger populations

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Workforce drawing area

According to the 2001 Broome-Tioga County Workforce Development Survey, 82 percent of employees of Broome-Tioga companies live within the two-county region. This percentage varies within industries. The manufacturing and trade sectors draw more people from outside of the area than other industries, while agriculture and public administration jobs are mostly filled by individuals living within Broome or Tioga County. Sixteen percent of the region's manufacturing employees, for example, live outside of New York State – most likely coming from northern Pennsylvania.

The region's ability to draw a high portion of manufacturing employees from across the state border is more evidence that the Broome-Tioga region is the core of manufacturing activities for the entire Southern Tier. One potential threat of this situation is that as more manufacturing jobs disappear, the region is going to lose its commuter workforce and the spending generated by these individuals. Because of this concern, **region-wide workforce development should be a priority.** Job cuts in Broome-Tioga will affect workers across state borders. **Workforce developers within the Southern Tier and northern Pennsylvania must work together to ensure that workers have the skills to transition into service industries and high tech positions.**

**Distribution of Jobs by Jobholder's Place of Residence
Industries in Broome-Tioga Counties, 2001**

Industry	% distribution of workers by residence		
	B-T Region	Rest of NYS	Outside NYS
Manufacturing	75%	9%	16%
Construction and mining	84%	9%	7%
TCPU	87%	5%	8%
Trade	76%	17%	7%
FIRE	84%	12%	4%
Services	85%	7%	8%
Agricultural services	94%	4%	2%
Public administration	93%	6%	1%
TOTAL, all industries	82%	9%	9%

Source: Broome-Tioga Workforce Development Survey, 2001

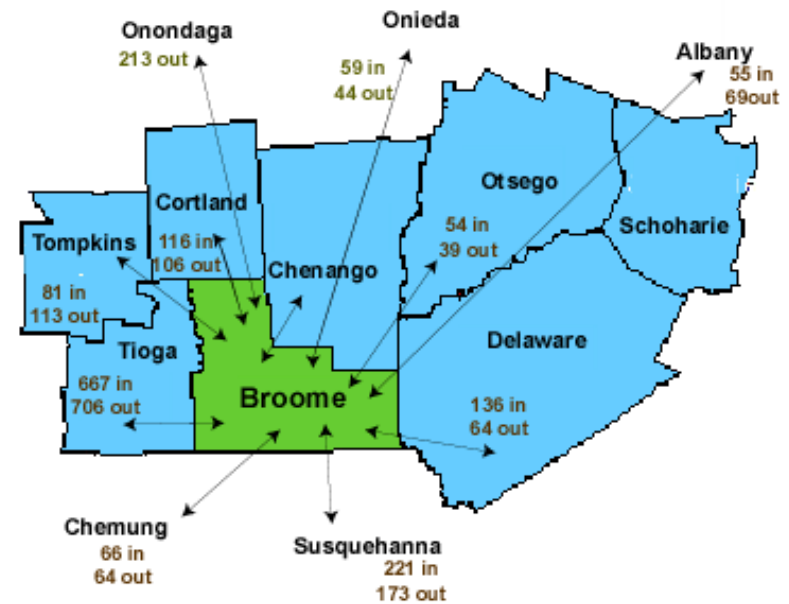
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Migration Patterns

According to the Southern Tier East Regional Planning Development Board, the highest percentage of workers relocating into Broome County are moving from other cities in New York State. Pennsylvania supplies the second highest percentage of in-migrants to the county, in particular Susquehanna and Chemung counties. Outside of the immediate region, Florida shares the greatest number of individuals migrating into and out of Broome County.

Migration Patterns Into and Out of Broome County, 1997-1998

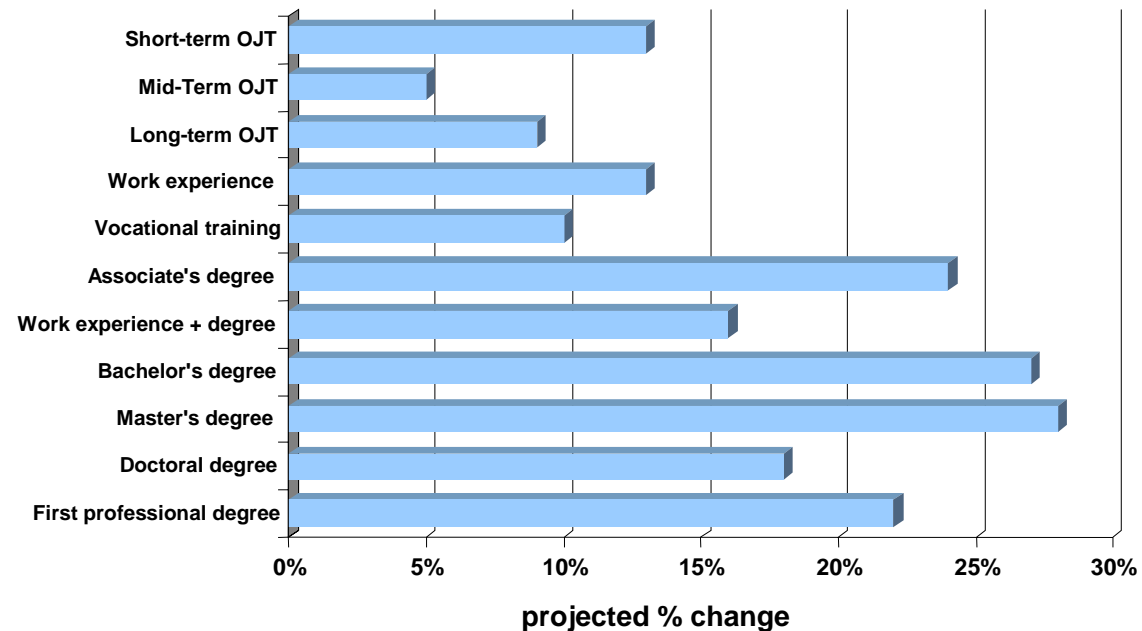


source: Southern Tier East Regional Planning Development Board

Part Two: Future Workforce Trends

As described in Part One, Broome County is in the midst of a transition that has left the region with sagging economic performance. If these trends continue, Broome County will increasingly lag behind the national average. It is, therefore, imperative that the community commit to setting a new economic development direction aimed at attracting and retaining

**Projected U.S. Employment Change and Job Openings,
1994-2005**



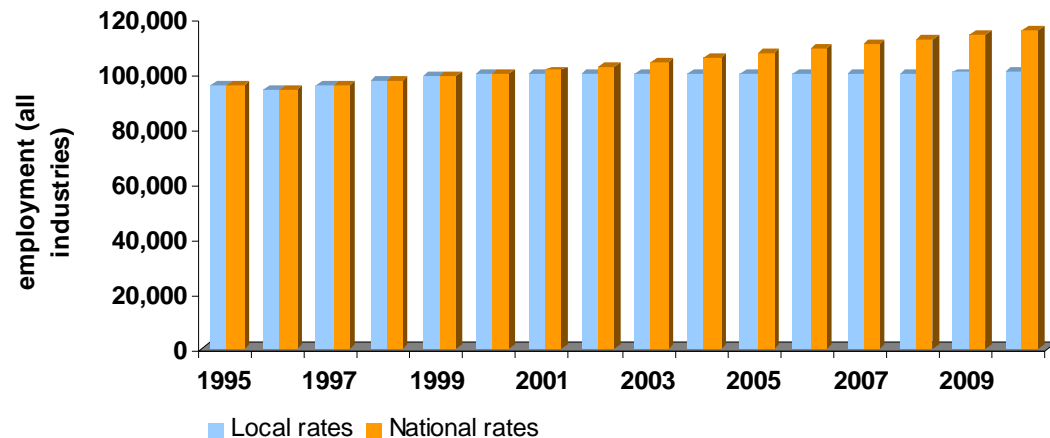
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high impact businesses.

The illustration to the right shows two development paths for Broome County. The blue bars represent employment growth through 2010 based on 10-year historical growth rates. The orange bars represent employment based on the Bureau of Labor Statistic's forecasted national growth rates. This illustrates that the region will experience stagnant growth if current conditions continue. It is likely that negative growth could occur under these conditions, as increasing numbers of workers and businesses leave Broome County for areas with economic opportunity. To avoid this scenario, it is important for the region to prepare its workforce to meet future job demands.

Forecasted Employment Growth: Broome County '95-'10



The Bureau of Labor Statistics and New York's Department of Labor develop occupational forecasts for the 9-county Southern Tier region show which skill sets will experience the highest demand in future years. One recent forecast shows that, in addition to college degrees, employers will be searching for more workers with Associate's degrees and on-the-job (OTJ) training.

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Broome-Tioga employers are in-line with these national trends. According to the 2001 employer survey, approximately 95 percent of workforce development in the region occurs in-house. Twenty-four percent of employers responding to the survey indicated that new applicants lacked most in job-specific and computer skills. Additionally, two out of three employers stated new hires require additional training.

Employers Indicating Skill Deficiencies Among Applicants by Industry, Broome-Tioga Region, 2001

Industry	% of respondents indicating deficiency by skill category		
	Basic skills	Social skills	Job-specific skills
Manufacturing	20%	20%	38%
Construction	9%	13%	29%
TCPU	4%	11%	15%
Trade	7%	20%	18%
FIRE	7%	15%	23%
Services	6%	11%	22%
Agricultural services	10%	23%	28%
Public administration	5%	8%	13%
TOTAL	8%	15%	24%

TCPU - Transportation, Communications, and Public Entities

FIRE - Finance, Insurance, and Real Estate

source: Broome-Tioga Workforce Development Survey 2001

Within the 2001 workforce survey, local employers have indicated specific skill sets that they will require in the upcoming years. Overall, employers feel that the local market lacks enough individuals with (1) general job-related skills, (2) management skills, and (3) computer skills. Manufacturers demand an increase in technical skills, specifically:

- Blueprint reading
- Shop math
- Machinist training
- Precision measurement
- Micrometer reading

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All employers indicated a need for improved computer skills, particularly in software applications such as:

- Microsoft Office
- HTML
- AutoCAD

These highly demanded skill sets could be taught during short-term and mid-term training programs. Workforce and economic development leaders should heed employers' requests by training individuals for these highly demanded skills.

Based on federal forecasts, the New York Department of Labor has developed occupational forecasts for the years 1998-2008 (shown on the following page). These forecasts offer additional insight into the future skill demands within the Southern Tier region. Similar to the results of the Broome-Tioga employer survey, the DOL's report indicates that occupations related to computer science and engineering top the list of fastest growing demand. On average, these jobs are predicted to increase 7 percent per year and pay a high hourly wage of approximately \$22.

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Fastest Growing Occupations - Southern Tier 1998-2008

Occupation	Annual Growth Rate 1998-2008	Employment Base Year 1998	Employment Projected Year 2008	Median Hourly Wage 1998
Computer scientists, n.e.c.	8.9%	200	470	--
Computer engineers	7.8%	880	1,880	\$22.94
Systems analysts	6.0%	750	1,350	\$22.49
Computer support specialists	5.3%	1,350	2,270	--
Data processing equipment repairers	4.7%	120	190	\$13.21
Medical assistants	4.4%	670	1,040	\$9.58
Cleaners/servants, private	4.4%	330	510	--
Paralegals	4.1%	180	270	\$11.78
Instructional coordinators	4.1%	240	360	\$17.09
Home health aides	4.0%	1,780	2,660	\$7.79
Securities, financial services sales agents	4.0%	410	610	\$24.77
Residential counselors	3.9%	190	280	\$8.96
Human services workers	3.9%	1,370	2,010	\$10.04
Physician assistants	3.8%	110	160	\$24.47
Physical & corrective therapy assistants	3.7%	310	450	\$11.65
Emergency medical technicians	3.7%	380	550	\$8.18
Personal home care aides	3.7%	1,410	2,040	\$7.06
Dental assistants	3.6%	560	800	\$9.37
Biological scientists	3.5%	240	340	--
Engineering, mathematical, natural sciences managers	3.4%	770	1,080	\$34.85
Dental hygienists	3.4%	450	630	\$17.48
Physical therapists	3.2%	270	370	\$23.36
Guides	3.1%	140	190	\$6.02
Teachers & instructors, n.e.c.*	3.0%	550	740	\$14.29
Speech pathologists & audiologists	3.0%	290	390	\$19.75
Numerical control machine tool operators	2.9%	500	670	\$13.04

source: NYS Dept of Labor

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Part Three: Workforce Needs of Target Industries

Ideally, Broome County’s workforce development efforts will concentrate on fostering those skill sets most demanded by the region’s target industries. A strong skill base could become the region’s number one strength for recruiting businesses.

Coincidentally, the **skill sets demanded by Broome County’s target industries are also those that are effective for attracting most high impact businesses.** They are the same skills that appear at the top of then New York DOL and Bureau of Labor Statistics occupational demand forecasts. Individuals with these skills are also more likely to become entrepreneurs. **Community leaders are, therefore, encouraged to allow the skill needs of target industries direct decisions about allocation of workforce development resources.**

The Occupational Employment Statistics division of the Bureau of Labor Statistics have developed occupational breakdowns for each 3-digit SIC code. These lists provide a breakdown of the average workforce of an employer within each industry segment. From this, one can estimate the occupations, and skill sets, required by Broome County’s target industries.

Target Industry Skill Demands

Skills Required		Electronics	Communications	Food Processing	Health Services	Biotechnology
Technical	<i>computer, science, engineering</i>	◆	◆			◆
Production	<i>assembly, machine operation, packaging</i>	◆		◆		
Health	<i>nursing, health aides, social services</i>				◆	◆

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The following sections compare occupational breakdowns for Broome County’s main target industry categories with job opening forecasts within the Southern Tier and the Broome-Tioga counties. Based on this comparison, conclusions can be drawn about on which specific skills workforce development should focus to prepare for recruiting new businesses and meeting future demands of current employers.

ELECTRONICS COMPONENTS

Electronics has a strong cluster ratio in Broome County. Together with computer equipment, the two sectors employ nearly 10,000 people, or 8.5 percent of all jobs in the region. Despite losing 2,500 electronics jobs since 1997, the county still maintains a location quotient of 4.00. Local employers in this industry include ENSCO, L3 Communications, NLX, and Innovation Associates.

The county’s long history in this field has generated a concentration of electronics knowledge in the region. Demand for individuals with these skills will rise if the county successfully implements a focused effort to recruit technology companies and foster entrepreneurship.

Two occupations dominate the total employment of electronics components companies. **Production** employees comprise almost 50 percent of the workforce

Architecture and Engineering Occupations

- **Comprise 18 percent of electronics components jobs**
- **Earn an average annual wage of \$52,100**
- **3.5% of unfilled jobs in Broome County are engineering positions**

of these firms. Production employees include electronics assemblers and semiconductor processors. **Engineers** make up the second largest factor of electronics components businesses – 18.4 percent of employees have skills as electrical engineers and technicians.

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Large electronics manufacturers are not a recommended target for Broome County. However, support services, suppliers, and research and development institutions will be vital to growth of this sector within the region. Like manufacturers, these businesses will require a workforce rich in technical and engineering skills.

SIC 367- Electronics Components

source: Occupational Employment Statistics, Bureau of Labor Statistics 2000

Occupation	Employment Estimate		Wage Estimate	
	US Employment	% of Total	Mean Hourly	Mean Annual
TOTAL	718,340	100.00%	\$ 18.63	\$ 38,750.00
Management occupations	52,160	7.26%	\$ 41.91	\$ 87,160.00
Business and financial operations	21,850	3.04%	\$ 23.67	\$ 49,230.00
Computer and mathematical	27,080	3.77%	\$ 32.05	\$ 66,660.00
Architecture and engineering	132,150	18.40%	\$ 25.05	\$ 52,100.00
Life, physical and social science	4,200	0.58%	\$ 30.31	\$ 63,050.00
Legal occupations	510	0.07%	\$ 48.85	\$ 101,610.00
Education, training, and library	30	0.00%		
Art, design, entertainment	1,870	0.26%	\$ 22.96	\$ 47,750.00
Healthcare practitioners	620	0.09%	\$ 24.44	\$ 50,830.00
Protective services	930	0.13%	\$ 13.56	\$ 28,200.00
Food preparation	340	0.05%	\$ 9.31	\$ 19,360.00
Building maintenance and ground cleaning	3,960	0.55%	\$ 11.17	\$ 23,240.00
Sales and related	18,870	2.63%	\$ 24.81	\$ 51,590.00
Office support and administrative	61,960	8.63%	\$ 14.67	\$ 30,510.00
Construction and extraction	1,770	0.25%	\$ 19.56	\$ 40,680.00
Installation, maintenance, and repair	21,400	2.98%	\$ 18.11	\$ 37,670.00
Production	356,030	49.56%	\$ 12.07	\$ 25,110.00
Transportation and material moving	12,600	1.75%	\$ 11.15	\$ 23,200.00

THE BROOME COUNTY PLAN FOR SUSTAINABLE ECONOMIC DEVELOPMENT

WORKFORCE ASSESSMENT

Top skill sets:

Electronics assemblers
Electrical engineers and technicians
Shipping and receiving clerks
Semiconductor processors

The number of Broome-Tioga architecture and engineering jobs within the electronics components sector is expected to increase approximately 25 percent between 1998 and 2008. The need for production workers is also predicted to rise. With the recruitment of additional electronics components firms, demand will increase more than currently predicted. It is therefore

important that local workforce and economic development leaders: retain, re-train, and recruit electronics technicians and engineers to the community.

COMMUNICATIONS SERVICES

The Communication Services cluster includes providers of cable television services, satellite TV services, and other cable and satellite-based transmission services. It also includes providers of wireless communication products and services, including cellular, paging, wireless data and messaging services, and other mobile and wireless telecom services. Inputs to the Communication Services cluster include electronics firms, software developers, and semiconductor manufacturers.

The Communications Services cluster currently employs 450 people in Broome County. Broome County's location quotient of 0.30 in the industry means the region is currently importing these services from elsewhere. The major employer in this cluster for Broome County is FYI Imaging, which employs approximately 265.

Though Broome County does not currently have a high location quotient for communication services businesses, portions of this industry are recommended targets for future growth. Nationwide, the industry is expected to expand by 225,000 jobs between 2000 and 2010. Targeting these businesses will allow the region to tap into this job creation as well as take advantage of its strong software and technical skill set.

THE BROOME COUNTY PLAN FOR SUSTAINABLE ECONOMIC DEVELOPMENT

WORKFORCE ASSESSMENT

Within the communications services industry, Broome County has been advised to target the following niches:

- Data storage centers
- Technical customer support centers
- Photonics

An example of a typical firm within the technical customer support center niche – SIC 737 computer programming – is provided below. According to the

Computer and Mathematical Occupations

- **Comprise 47 percent of computer programming jobs**
- **Earn an average annual wage of \$64,640**
- **3% of unfilled jobs in Broome County are computer positions**

Bureau of Labor Statistics, around 47 percent of employees within this industry have computer and mathematical skills, specifically computer software engineers and programmers. Office support and administrative personnel comprise approximately 18 percent of employment.

THE BROOME COUNTY PLAN FOR SUSTAINABLE ECONOMIC DEVELOPMENT

WORKFORCE ASSESSMENT

Between 1998 and 2008, the number of computer and mathematical jobs in Broome County is forecasted to increase 32 percent. Currently, employment within these occupations in Broome and Tioga counties is relatively low. Yet, more than 300 students from BU and BCC are graduating with degrees in this field each year. During interviews within the community, many employers touted the region's top-notch software skills.

SIC 737 - Computer Programming

source: Occupational Employment Statistics, Bureau of Labor Statistics 2000

Occupation	Nationwide SIC 366 Only			
	Employment Estimate		Wage Estimate	
	Employment	% of Total	Mean Hourly	Mean Annual
TOTAL	2,243,030	100.00%	\$ 22.16	\$ 46,100.00
Management occupations	265,150	11.82%	\$ 42.72	\$ 86,610.00
Business and financial operations	158,880	7.08%	\$ 25.98	\$ 54,700.00
Computer and mathematical	1,056,700	47.11%	\$ 30.21	\$ 64,640.00
Architecture and engineering	67,410	3.01%	\$ 29.52	\$ 54,480.00
Life, physical and social science	23,200	1.03%	\$ 28.95	\$ 57,980.00
Legal occupations	5,370	0.24%	\$ 36.11	\$ 105,130.00
Education, training, and library	2,760	0.12%	\$ 21.13	\$ 44,360.00
Art, design, entertainment	45,780	2.04%	\$ 24.06	\$ 48,840.00
Healthcare practitioners	2,930	0.13%	\$ 23.13	\$ 50,320.00
Protective services	2,030	0.09%	\$ 15.02	\$ 29,730.00
Building maintenance and ground cleaning	3,240	0.14%	\$ 10.09	\$ 24,540.00
Sales and related	121,000	5.39%	\$ 27.44	\$ 62,430.00
Office support and administrative	417,450	18.61%	\$ 13.46	\$ 31,130.00
Construction and extraction	540	0.02%	\$ 20.10	\$ 40,290.00
Installation, maintenance, and repair	36,810	1.64%	\$ 16.41	\$ 40,770.00
Production	18,810	0.84%	\$ 12.42	\$ 26,270.00
Transportation and material moving	12,720	0.57%	\$ 10.35	\$ 24,200.00

THE BROOME COUNTY PLAN FOR SUSTAINABLE ECONOMIC DEVELOPMENT

WORKFORCE ASSESSMENT

Top skill sets

Computer software engineers
Computer hardware engineers
Computer programmers
Customer service representatives

Should Broome County begin targeting communications services firms, it will be essential that workforce and economic developers devote resources to retaining computer software engineers graduating from local schools. As with the electronics and computer equipment industry, demand for individuals with engineering and computer skills is forecasted to increase dramatically.

Wages for these jobs are also far above average – the mean salary for the nation is \$64,640 per year before benefits. It is proven that communities with ample engineering talent are more successful recruiting high tech, high impact businesses.

FOOD PROCESSING

The food-processing cluster includes establishments that manufacture or process foods and beverages for human consumption as well as related products such as chewing gum, manufactured ice, and vegetable and animal fats and oils.

This sector currently employs approximately 1100 people in Broome County. The largest employer in this cluster is Frito-Lay with 850 employees. Within the industry, it is advised

Production Occupations

- **Comprise 41 percent of food processing companies**
- **Earn an average annual wage of \$21,720**
- **9% of unfilled jobs in Broome County are production positions**

that Broome county target two types of businesses: (1) packaged snacks, the highest margin sector of the cluster, and (2) food automation, a technical segment of the cluster.

THE BROOME COUNTY PLAN FOR SUSTAINABLE ECONOMIC DEVELOPMENT

WORKFORCE ASSESSMENT

Almost 12,000 food processing businesses are currently operating in the U.S. More than 50 percent of companies in this sector employ fewer than 20 people, but employers with more than 100 workers make up 80 percent of employment in the entire industry.

SIC 209- Miscellaneous Food Preparations

source: Occupational Employment Statistics, Bureau of Labor Statistics 2000

Occupation	Employment Estimate		Wage Estimate	
	US Employment	% of Total	Mean Hourly	Mean Annual
TOTAL	178,700	100.00%	\$ 12.87	\$ 26,770.00
Management occupations	9,770	5.47%	\$ 35.49	\$ 73,830.00
Business and financial operations	2,430	1.36%	\$ 23.16	\$ 48,180.00
Computer and mathematical	680	0.38%	\$ 25.74	\$ 53,540.00
Architecture and engineering	630	0.35%	\$ 23.58	\$ 49,050.00
Life, physical and social science	1,130	0.63%	\$ 19.23	\$ 40,000.00
Art, design, entertainment	80	0.04%	\$ 22.06	\$ 45,890.00
Healthcare practitioners	50	0.03%	\$ 15.90	\$ 33,070.00
Protective services	200	0.11%	\$ 9.90	\$ 20,600.00
Food preparation and serving	7,210	4.03%	\$ 7.79	\$ 16,210.00
Building maintenance and ground cleaning	2,890	1.62%	\$ 9.62	\$ 20,010.00
Sales and related	4,540	2.54%	\$ 19.87	\$ 41,330.00
Office support and administrative	16,610	9.29%	\$ 12.80	\$ 26,620.00
Farming fishing forestry	1,920	1.07%	\$ 9.35	\$ 19,450.00
Construction and extraction	530	0.30%	\$ 16.40	\$ 34,100.00
Installation, maintenance, and repair	8,310	4.65%	\$ 16.58	\$ 34,480.00
Production	73,410	41.08%	\$ 10.44	\$ 21,720.00
Transportation and material moving	48,210	26.98%	\$ 10.76	\$ 22,380.00

THE BROOME COUNTY PLAN FOR SUSTAINABLE ECONOMIC DEVELOPMENT

WORKFORCE ASSESSMENT

Production workers comprise approximately 41 percent of companies in the miscellaneous food preparations industry, one of the SIC categories recommended to Broome County. Transportation and material moving occupations are the second highest number of jobs in the industry. Within Broome County, the number of production jobs is predicted to increase 11 percent between 1998 and 2008. Given the projected growth in this field, it is important for the region to support training services that prepare workers for production jobs. This will enable the county to supply a well-prepared workforce to food processing businesses.

Again, **the continued training and retaining of engineering and computer software skills is critical to Broome County's economic growth.** These occupations fuel not only the electronics and communications industries, but will provide impetus for new technological

Top skill sets:
Packing and filling machine operators
Packing and packagers (hand)
Shipping and receiving clerks

applications for the food processing industry. As the industry begins to automate a greater number of facilities, companies are employing more industrial and mechanical engineers, computer programmers, systems analysts, and chemists. Individuals with these skills are also more likely to create new entrepreneurial ventures.

HEALTH SERVICES

As the country continues to age, health services is expected to grow through the current decade and reach almost 13 million employees by 2010. In addition, residential services – establishments are engaged in the provision of residential care for children, the aged, or disabled in which medical care is not a major element – is expected to be the second

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fastest growing industry from 2000-2010. Over 500,000 new jobs are forecasted for the 10-year period. As the decade moves forward, and health services accounts for 13 percent of all additional employment over the next 10 years, the industry will begin to decentralize. Hospital employment will rise only 10 percent, as home healthcare will grow 68 percent.

As discussed in the *Cluster and Target Industry Analysis*, Broome County's current cluster strength (1.72 location quotient) combined with its aging population makes the

Healthcare Support Occupations
<ul style="list-style-type: none"> • Comprise 24 percent of health services companies • Earn an average annual wage of \$17,460 • 3% of unfilled jobs in Broome County are production positions

region ripe for further health services development. The industry currently employs 17,860 people in Broome County¹. This concentration of health services workers will be attractive to businesses looking to start or expand in the region. Within the health services industry, residential care is one segment Broome County is recommended to pursue. Residential care is expected to become the nation's second fastest growing industry in the coming years. Considering this strong growth, Broome should dedicate economic and workforce development resources to ensuring that the region maintains its edge over communities that could be potential competitors.

Top skill sets
<p>Home health aides Personal and home care aides Social service workers Rehabilitation counselors</p>

Healthcare support occupations (primarily personal and health aides) comprise the highest percentage of jobs in the average company (25 percent), followed closely by personal care (20 percent) and community services workers (17 percent). Broome County is forecasted to employ

¹ AngelouEconomics uses an expanded definition of Health Services that includes doctor/dentist offices, nursing homes and residential care, hospitals, and testing laboratories.

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15,500 people in these three occupations by 2008. Between 1998 and 2008, the number of healthcare support jobs in Broome County is forecasted to increase 28 percent.

Though computer and engineering positions are rare in most health services, they play an important role in Broome County's other health-related target industry – **biotechnology and bioinformatics**.

BIOTECHNOLOGY

Although Biotechnology does not employ thousands of individuals like Health Services, it is an interesting long-term prospect for Broome County's

Life, Physical, and Social Science Occupations

- **Comprise 22 percent of health services companies**
- **Earn an average annual wage of \$46,980**
- **3% of unfilled jobs in Broome County are production positions**

development. Funding for the Center for Advanced Technology in Biotechnology at BU, combined with the region's strong technical workforce and potential bioscience incubator, could form a good foundation for biotechnology entrepreneurship.

Biotechnology is complimentary to Broome County's other target industries. Similar to electronics and communications services, biotech companies employ engineers and scientists. Its reliance on health professionals and researchers compliments the health services sector and the activities of BU and BCC.

Top skill sets

Chemists
Medical scientists
Biological and medical technicians
Computer programmers
Electrical engineers
Interviewers

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Biotechnology research and development, particularly in the field of bioinformatics, is a recommended target industry for Broome County. The following table shows the employment breakdown of the Research, Development, and Testing

SIC 873 - Research, Development, and Testing Services

source: Occupational Employment Statistics, Bureau of Labor Statistics 2000

Occupation	Employment Estimate		Wage Estimate	
	US Employment	% of Total	Mean Hourly	Mean Annual
TOTAL	657,250	100%	\$ 23.30	\$ 48,450.00
Management occupations	81,700	12.43%	\$ 40.62	\$ 84,500.00
Business and financial operations	54,930	8.36%	\$ 26.90	\$ 55,940.00
Computer and mathematical	50,860	7.74%	\$ 29.40	\$ 61,140.00
Architecture and engineering	68,700	10.45%	\$ 28.12	\$ 58,490.00
Life, physical and social science	143,850	21.89%	\$ 22.58	\$ 46,980.00
Community and social services	2,920	0.44%	\$ 16.83	\$ 35,000.00
Legal occupations	1,740	0.26%	\$ 37.78	\$ 78,590.00
Education, training, and library	5,890	0.90%	\$ 24.61	\$ 51,200.00
Art, design, entertainment	8,720	1.33%	\$ 21.46	\$ 44,630.00
Healthcare practitioners	15,030	2.29%	\$ 21.84	\$ 45,430.00
Healthcare support	6,480	0.99%	\$ 11.88	\$ 24,710.00
Protective services	2,260	0.34%	\$ 14.67	\$ 30,510.00
Food preparation	330	0.05%	\$ 10.15	\$ 21,110.00
Building maintenance and ground cleaning	3,990	0.61%	\$ 10.79	\$ 22,450.00
Personal care and service	1,900	0.29%	\$ 8.83	\$ 18,360.00
Sales and related	14,060	2.14%	\$ 19.43	\$ 40,420.00
Office support and administrative	146,800	22.34%	\$ 12.95	\$ 26,930.00
Construction and extraction	7,930	1.21%	\$ 17.51	\$ 36,410.00
Installation, maintenance, and repair	8,230	1.25%	\$ 17.94	\$ 37,310.00
Production	24,300	3.70%	\$ 15.16	\$ 31,540.00
Transportation and material moving	5,380	0.82%	\$ 11.10	\$ 23,080.00

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Services SIC category. Almost 22 percent of jobs in this industry are life, physical, and social science occupations – specifically chemists, medical scientists, and technicians. The number of these jobs is predicted to increase 25 percent in Broome County between 1998 and 2008. Computer programming is another skill set important to the bioinformatics industry. Individuals with interview skills make up 6 percent of the entire industry. Forecasts indicate the number of these jobs in Broome County will increase 32 percent this decade.

Part Four: Inventory of Workforce Development Programs

Broome County currently has an excellent base of workforce development programs. It will be the responsibility of community leaders to support those programs that meet the workforce demands of target industries. This section of the report contains an inventory of top workforce development programs in Broome County.

According to the *2001 Workforce Development Survey*, a vast majority of local employers use in-house training more often than any other method of workforce development. BCC, local high schools, and the Broome-Tioga Board of Cooperative Educational Services (BOCES) are common outsourced training providers.

Manufacturers are more likely to outsource workforce development. For example, 8 percent of total employers engage workers in community college programs to enhance job skills but 16 percent of manufacturers use these programs. Thirteen percent of local manufacturers utilize programs at the BOCES. Manufacturers are also more likely than any other industry to use Department of Labor services to recruit employees.

**Training Methods Used
 Broome-Tioga Region, 2001**

Method	% using method
In-house (on-the-job) training	95.7%
Community college	7.9%
High school	6.0%
BOCES	5.5%
Four-year college/university	5.3%
Private training academy	5.2%
Department of Labor	3.5%
Union	2.3%
Internet	1.8%
Private job placement agency	1.8%
Workforce Investment Board	0.3%

source: 2001 Broome-Tioga Workforce Development Survey

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The high percentage of employers using in-house training may be linked to the type of skills training demanded. Survey results indicate that employers provide general and supervisory skills training to employees more than any other type. These are typically short or mid-term programs that can be performed on site. Employers also indicate that employees often require basic software skills training. Again, workforce development programs for this topic are short to mid-term.

Longer-term training programs, such as environmental certifications or advanced computer programming are required for a smaller portion of employees and are typically outsourced. Broome-Tioga employers indicated that demand for workforce development in Internet-related applications such as HTML programming, machine operation, and ISO certification will continue to be strong in the years to come.

Broome County workforce developers should encourage local employers, educational institutions, and unemployed individuals to develop proficiency in areas projected to be demanded by (1) current employers (as indicated in the employer survey) and (2) target industries. Programs geared to enhancing these skills are currently available in Broome-Tioga counties. The following section is an inventory of top workforce development programs in the region. Those that meet current employer and target industry skill requirements are highlighted.

Most Beneficial Skills Training Broome-Tioga Region

Skills Category	Today	1+ years
Problem solving - decision making	23.6%	19.0%
Employee motivation	22.9%	18.5%
Windows software	22.7%	18.4%
Workplace ethics	21.4%	16.1%
Interpersonal - verbal communications	20.6%	15.0%
Management problem solving	20.3%	20.3%
Office software	19.8%	14.2%
Team building	18.6%	15.6%
Management team leadership	18.2%	15.0%
Effective supervisory skills	16.8%	13.0%
Written communications	13.5%	10.8%
Basic grammar, spelling, math	12.2%	7.6%

source: 2001 Broome-Tioga Workforce Development Survey

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BROOME COMMUNITY COLLEGE

BCC offers more than 100 customized training programs. Last year, BCC was engaged in 175 workforce development contracts with local companies. Through its corporate training and education programs, the college is one of the region's greatest assets for economic development. To keep updated on the most recent employer and community needs, BCC relies upon a 40 person Corporate Services Council comprised of local employers.

BCC works closely with the Broome-Tioga Workforce Development Board and with area training managers to determine the needs of area companies and to write grants to provide training to meet those needs. In April 2001, the Board was awarded a \$755,000 grant for high tech training. In June, an additional award of \$474,000 was obtained for training manufacturing workers. In August, \$28,930 was received to train staff at area architectural and engineering firms.

Inventory of Broome-Tioga Workforce Development Programs

Broome Community College			Industry						
			General Work Skills	Technical	Electronics	Communications	Food Processing	Health Services	Biotechnology
Programs - High demand by industry targets or current employers									
A+ PC Support Technician Certification		■	■	■				■	
AutoCAD		■	■	■					
Business Administration	■								■
Business Information Management		■							■
Business Skills	■								■
Certified Dental Assisting		■					■		
Chemical Dependency Counseling		■					■		
Chemical Engineering Technology		■						■	
Computer Information Systems		■	■	■				■	■
Computer Science		■	■	■				■	■
Computer Technology		■	■	■				■	■
Creating Web Pages and Graphics		■	■	■					■
Dental Hygiene		■					■		
Dietary Manager (Certificate)		■					■		
Electrical Engineering Technology		■	■	■				■	
Emergency Medical Technology/Paramedic		■					■		
Engineering Science		■	■	■					■
Health Information Technology		■					■	■	

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BCC has worked closely with local employers such as IBM, Lockheed Martin, Universal Instruments, and NYSEG to provide custom training for their employees. For example, the college has provided AutoCAD design courses for Lockheed Martin, finance training for UIC, and project management training for the Engineering/Architecture Consortia.

In the High Tech Training Project, BCC is partnering with BU and the Alliance for Manufacturing and Technology (AM&T) to provide training for ten local companies. BCC will deliver training in C++, Javascript, Visual Basic, ISO Auditor, AutoCAD, Technical Project Management, and other areas. Companies involved include BAE Systems, Universal Instruments, Harris Tool, Hidden Valley Electronics, and others.

Inventory of Broome-Tioga Workforce Development Programs *continued*

Broome Community College			Industry					
			Electronics	Communications	Food Processing	Health Services	Biotechnology	Current employers
Programs - High demand by industry targets or current employers	General Work Skills	Technical						
Health Sciences: Individual Studies		■				■	■	
Human Services		■				■		
Industrial Technology		■			■			
Intro. to PC Troubleshooting		■						■
Management	■							■
Manufacturing Resources Management		■			■			
Marketing/Management/Sales	■		■	■	■	■	■	■
Mechanical CAD/CAM / CAD		■	■					
Mechanical Engineering Technology		■	■					
Medical Assistant		■				■		
Medical Laboratory Technology		■				■		
Medical Transcription		■				■		
MS Office / Windows	■							■
Nursing		■				■	■	
Office Administration	■							■
Physical Therapist Assistant		■				■		
Purchasing	■		■		■			
Radiologic Technology		■				■		
Telecommunications Technology		■		■				

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WORKFORCE ASSESSMENT

The two tables on the previous pages list many of BCC's workforce development programs and indicate their suitability to the needs of both target industries and current employers (as indicated in the 2001 survey). A majority of programs available at BCC offer job-specific ("technical") skills such as computer science, advanced computer applications, engineering, or health related. BCC also offers programs that enhance basic business skills such as management, sales, or basic software packages. Recently, BCC began an innovative "train the trainer" initiative to create corporate coaches and facilitators from underemployed and displaced executives. In turn, these individuals are able to launch their own consulting practices, traveling across the country to share their vast knowledge with other companies.

This information shows that BCC currently offers a variety of programs that meet the skills demands of all target industries. Computer science and engineering technician programs will benefit companies in the electronics and communications services clusters. Nursing, therapy, and medical technician programs should be touted to health services and biotechnology firms. The college also offers business courses catering to local employers' desires for management and basic office skill training.

BINGHAMTON UNIVERSITY

With a student body numbering 12,800, BU has been ranked within the top 30 universities in the U.S. The university is well respected for its nursing, electronics, computer science, and management programs.

BU has a significant impact on the local economy. It currently employs 3,511 full- and part-time faculty, staff, and graduate and undergraduate students. In addition, campus related services employ another 562 persons. Through

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WORKFORCE ASSESSMENT

payroll, purchasing and expenditures of employees, students and visitors, the university adds more than \$300 million annually to the local economy.

The university also benefits the community as a major workforce development provider. Like BCC, BU offers a variety of skills training programs of all levels. Working with local employers, BU offers more than 40 continuing education courses. A list of those programs serving the skill needs of target industry employers is provided in the table on the right.

BU is an important driver of research and development activities for the region. Employers are increasingly sponsoring research activities at the university – these programs have grown 34 percent in the past five years. Through BU’s Integrated Electronics Engineering Center, almost 500 jobs have been created or retained since 1997.

Inventory of Broome-Tioga Workforce Development Programs

Binghamton University	General Work Skills	Industry					
		Technical	Electronics	Communications	Food Processing	Health Services	Biotechnology
Programs - High demand by industry targets or current employers							
Accounting Fundamentals	■		■				■
Administration Certificate Program	■						■
Administrative Medical Specialist		■			■	■	
Advanced ICD-9 Coding		■	■				
Advanced Microsoft Word		■					■
BA or BS Human Development		■			■		■
Basic Supervision Certificate 1	■						■
BS-Computer Science		■	■	■		■	
Business Communications Using E-Mail	■						■
Certificate in Project Management		■					■
Certificate in Total Quality		■			■		■
CGI Programming for the Web		■	■	■			
Computer Skills for the Workplace	■						■
Creating Web Graphics / Pages		■		■			■
Microsoft Office for Beginners-Advanced		■					■
Javascript		■					■
Managing Difficult Supervisory Situations	■						■
Medical Transcriptionist		■			■		

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In the upcoming years, the university will be involved in several programs that could set the direction for the region's economic development. Its Advanced Biotechnologies Center is predicted to create a regional net economic impact of \$400 million within its first five years. Other programs include:

- National security** – Building on steganographic research occurring at BU, the university has recently been named as a partner in an \$8 million federally funded consortium related to the security of military communications. The university will partner with the Air Force Research Laboratory in Rome and Eastman Kodak. These activities contribute to the communications technology base in Broome County, making the region more attractive to companies in this target industry.
- Biotechnology** – The Center for Protein Dynamics is within BU's Advanced Biotechnologies Center. Focusing on

Inventory of Broome-Tioga Workforce Development Programs
continued

Binghamton University	General Work Skills		Industry					
			Electronics	Communications	Food Processing	Health Services	Biotechnology	Current employers
Programs - High demand by industry targets or current employers								
Microsoft Certified Systems Engineer	■						■	■
Microsoft Front Page 98	■						■	
Microsoft Publisher 2000	■				■			
Performing Payroll in QuickBooks	■							■
Photoshop Basics	■							■
Preparing for the CCNA 2.0	■				■			
Project Management Certificate Program	■		■	■	■	■	■	■
Quicken for Windows	■			■				
Sex In Media	■						■	
Travel Agent Certificate Course	■						■	
Web Design Certificate Course	■						■	
Website Planning and Design Certificate	■							■
Windows File and Disk Management	■						■	■
WordPerfect	■							■
Writing Javascript	■						■	

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disease and transplant diagnostics and treatments for cystic fibrosis and trauma, the Protein Dynamics center has received \$12 million in sponsored research. The university's first biotech incubated company, BioLife Solutions, was spawned from this program. Activities such as this within BU can form the core of a burgeoning biotechnologies cluster within the region – contributing greatly to Broome County's efforts to target those businesses and talent pool.

- **Sensor design** – The Advanced Sensor Design and Threat Detection Research Facility at BU has received several million dollars from DARPA to conduct research in the fields of chemical and biological sensors. Sensor design research compliments other defense-related research within the university. Given the nation's growing emphasis on security, BU is in an excellent position to pursue funds to build on its defense technologies knowledge base. For Broome County, sensor design activities can become a top selling point to its electronics target industries.

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WORKFORCE ASSESSMENT

BROOME-TIOGA BOARD OF COOPERATIVE EDUCATIONAL SERVICES (BOCES)

BOCES is an educational institution in New York State established to help public schools share their services, operating as an extension of local school districts and the State Department of Education. The Broome-Tioga BOCES services 15 school districts within the 2-county region. BOCES coordinates training and coursework through organizations such as BU, BCC, Lourdes Hospital, the Technology Research Committee, and UHS.

In addition to tuition assistance and GED training programs, BOCES offers workforce development programs to local employers. The table to the right lists those programs provided through BOCES that fit the skills needs of current and target industry companies. It offers more than 30 training programs in four main categories: skills development for managers, for customer service representatives, to enhance

Inventory of Broome-Tioga Workforce Development Programs

BOCES			Industry							
			General Work Skills	Technical	Electronics	Communications	Food Processing	Health Services	Biotechnology	Current employers
Programs - High demand by industry targets or current employers										
Blueprint reading / precision measurement		■	■							■
Boosting morale and productivity	■		■	■	■	■	■	■	■	■
CISCO networking		■	■	■						■
CNC programming for machinists		■	■							■
Computer aided drafting		■	■							■
Computer repair		■	■	■	■	■	■	■	■	■
Creative problem solving		■								■
Developmental therapy aide		■					■			■
Establishing performance expectations	■		■	■	■	■	■	■	■	■
Forklift operation		■	■	■						■
GED preparation, basic education, math	■			■	■					■
Handling difficult customers	■		■	■	■	■	■	■	■	■
Introduction to computers and the Internet	■		■	■	■	■	■	■	■	■
Lathe operator		■								■
Leadership training	■		■	■	■	■	■	■	■	■
Microsoft Word, Access, Excel, Powerpoint		■	■	■			■	■	■	■
MOUS testing preparation		■	■	■						■
Nurse assistant		■					■			■
Personal care aide		■					■			
Small engine repair		■								■
Superior customer services	■		■	■	■	■	■	■	■	■
Telephone techniques for customer call centers		■		■						■

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computer skills, and to develop trade and specialty talent. Customized training programs are also offered. Costs for BOCES' training courses range from \$420 up to \$3,360 depending on the subject and length of the class.

RIDLEY LOWELL BUSINESS AND TECHNICAL INSTITUTE

Ridley Lowell is a private workforce development provider with three campuses in New York. A majority of the programs offered last between 9-12 months and lead to professional certification.

Among its many programs, Ridley Lowell is an official Microsoft Certified Systems Engineer (MCSE) provider. The program is designed to train participants in developing business solutions based on the Microsoft platform. Graduates of this program will be valuable employees to a broad cross section of industries, including the technology targets recommended to Broome County.

OTHER WORKFORCE SERVICE PROVIDERS

Cybercity is a private training provider that teaches computer programming, web design

Inventory of Broome-Tioga Workforce Development Programs

RIDLEY LOWELL			Industry							
			General Work Skills	Technical	Electronics	Communications	Food Processing	Health Services	Biotechnology	Current employers
Programs - High demand by industry targets or current employers										
Administrative assistant	■		■	■	■	■	■	■	■	■
Computer programming		■	■	■				■	■	
Computerized bookkeeping		■	■	■	■	■	■	■	■	■
Information processing		■	■	■				■	■	
Managerial accounting	■		■	■	■	■	■	■	■	■
Medical administrative assistant		■					■	■	■	
Medical assistant		■					■	■	■	
Medical billing and coding specialist		■	■	■	■	■	■	■	■	■
Medical transcription specialist		■					■		■	
Networking and technical support specialist		■	■	■				■	■	
Office support specialist	■		■	■	■	■	■	■	■	■
Web design and development		■		■					■	

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and development, and Microsoft applications. With an office in Binghamton, Cybercity has provided training for more than 330 companies in the Broome County area.

Messenger Associates is a career placement and human resource-consulting firm located in downtown Binghamton. It offers workers services to help them transition into new jobs such as: career planning, outplacement, relocation services, and leadership coaching. It also offers professional consulting to human resource managers. One recent client in the health care sector, for example, engaged Messenger Associates in assessing its recruitment and hiring practices. As a result, the firm provided recommendations to improve the effectiveness of its human resource activities.

Minorities and Women Business Enterprise (MWBE) is a not-for-profit workforce-training provider focusing on the needs of financially challenged individuals. Programs offered by MWBE include training in fields such as accounting, business planning, financial planning, and career development. In June 2000, MWBE established the Community Technology Center to offer computer and technical skills development.

Sponsored through the Small Business Administration, the **Small Business Classroom** offers on-line training and assistance for entrepreneurs. Courses available online include topics such as: creating a business plan, raising capital, small business management, and e-commerce. Entrepreneurship education such as this will be important to Broome County's economic transition. The region's technical talent base should be exposed as much as possible to this type of training to spark interest in creating their own homegrown businesses.

The **Broome Employment Center** a New York State one-stop center serving job seekers with career decisions and job search. The Center provides computers, resume creation materials, and access to federal and state job bank listings.

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For employers, it offers job opening listings, screened referrals, labor market information, and coordination of labor-related incentives.

In Broome County, **New York State Employment Centers** are located in downtown Binghamton and the Glendale Technology Park in Endicott. These one-stop centers assist both local employers and job seekers. They connect companies and individuals with workforce development resources. Services offered include the following:

- Orientation to the workforce development system
- Skills assessment
- Job search and placement assistance
- Listings of job vacancies
- Information about local, highly demanded skills
- Connection to local training providers
- Assistance filing for unemployment compensation
- Information about job training grants and other state and federal incentives

The Endicott One-Stop Center houses the Regional Research & Statistics Department, an office dedicated to tracking labor market information for the entire Southern Tier. The department produces the annual Broome-Tioga Workforce Development Survey, a comprehensive survey of employers that provides one of the best available snapshots of future labor trends and skill requirements of local businesses. The information generated by the Research & Statistics Department is an valuable tool for economic developers and businesses alike.

Part Five: Recommendations

Broome County has a wealth of technology expertise and workforce development programs that can supply the skill needs of the region's target industries. Based on the research presented in this report and empirical information gathered by the consulting team during its interviews in Broome County, several recommendations can be drawn.

First, **it is essential that workforce development coordinate with the overall economic objectives of the community.** *The Broome County Plan for Sustainable Economic Development* suggests five main target industries on which the region should concentrate: electronics, communications services, food processing, health services, and biotechnology. **Ideally, the community will focus workforce training and recruiting individuals with those skills most demanded by target industries.** Information about these skill requirements is provided in Part Three of this report.

Recommendation: **Focus workforce development activities on meeting target industry labor requirements**

Action Item: **Support workforce development programs that train people in those skills most demanded by targeted companies**

Part Three of this report contains a description of the types of skills sought by high impact businesses. Part Four provides an inventory of training programs available in

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Broome County that develop those occupations: electronics technicians and engineers, computer software and hardware technicians, health care aides, production workers, and laboratory workers. Encourage underemployed and unemployed people to take courses in targeted skills. Distribute information about state and federal tuition assistance for individuals in those fields. Promote the value of those skill sets in the Broome Employment Center.

Action Item:

Lobby state government to provide heightened job training incentives for technical skills

While New York has ample job training incentives available to companies, there is little emphasis on the type of skill developed. It is imperative to target job training incentives on those skills most demanded by high impact industries. Encourage regional legislators to support the creation of targeted job training programs at the state level.

Second, the retention of individuals with target industry skill sets should be a top workforce priority. The community will be much more attractive to high impact companies if a fully prepared workforce is present. In addition, individuals with the computer, engineering, and science skill sets recommended here are also more likely to be entrepreneurs. Home-growing businesses has long been a part of Broome County's economic tradition and will continue with appropriate entrepreneurship education in place.

Recommendation 1: Make Broome County an attractive place for young professionals to live

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Action Item: **Understand student and young professional’s opinions about living in the region**

The better community leaders understand young people’s perception of the region, the better able they will be to address the problems that cause them to move away. Involve BCC and BU in creating and administering a survey of students to determine what they like and don’t like about the region. Ask participants to state what they would require to remain in Broome County following graduation.

Action Item: **Increase the stock of mid- to high-end multifamily housing**

A common complaint voiced across the region is the shortage of nice multifamily housing, appealing to young professionals. Many people interviewed suggested that apartments or condominiums developed in a community atmosphere (swimming pool, tennis courts, fitness facility) would help retain young people in Broome County. Currently, young professionals feel that housing options are limited, leading many to move away from the county.

Action Item: **Launch a regularly scheduled young professionals’ networking event**

Action Item: **Assist local educational institutions in conveying a positive image of the region to their students.**

Students attending Broome County schools tend to leave immediately following graduation. Research has revealed that students feel disengaged with the community during their school career, and educational leaders tended to speak negatively about

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the region. Broome County economic development officials should work with BU and BCC to develop information about the community geared toward young people. The creation of an “alternative” newspaper or website, for example, containing weekly club listings, movie times, and articles could remedy the often-mentioned problem of young people not knowing what to do in Broome County.

Action Item:

Involve young professionals in leadership organizations

During the consulting team’s meetings in Broome County it became apparent that few young businesspeople are involved in the leadership of the region. Organizations such as Partnership 2000, for example, should invite young professionals to participate. In return, Broome County will receive fresh ideas for the development of the region. Their involvement will help retain young workers.

Recommendation 2:

Promote community-wide entrepreneurship education

Action Item:

Provide entrepreneurship information to individuals recently laid off, retired, or in job transition

Entrepreneurship training should be included in Broome-Tioga Workforce Development Board activities. Individuals seeking assistance from workforce service providers should be provided with information making a case that starting a new business is a feasible working alternative. The New York State Department of Labor’s “Guide to Starting Your Own Business” is one example of a resource for prospective

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entrepreneurs. Use computers at the Center to link to other online small business information, such as the Small Business Classroom.

Action Item:

Work with local newspaper and other media to run a series of articles about starting a business

Local media is important component of all economic development activities. They provide the quickest method of disseminating information throughout the entire region. Work with the local paper, radio, and television stations to run a series of educational stories on topics such as (1) developing a business concept, (2) writing a business and marketing plan, (3) finding funding, (3) managing a start up company. Include links to other sources of information for entrepreneurs. Use local media to promote the activities of the Broome Entrepreneurs' Association (recommendation in this report).

Action Item:

Integrate BU's entrepreneurship program into community activities

Should the community decide to establish small business incubator(s), allow students from BU's entrepreneurship program to get hands-on experience at these facilities. For example, students could assist in writing business plans or networking businesses with financing.

In addition to an incubator, invite local business owners and financiers to form an "entrepreneurship brain trust," making their knowledge available to potential entrepreneurs. Ask these individuals to speak at a semi-annual entrepreneurship

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training course that is open to the community. This could be coordinated with activities by the Broome Entrepreneurs' Association (the following recommendation).

Action Item:

Form the Broome Entrepreneurs' Association

The community will benefit from the creation of an entrepreneur's association comprised of people interested in starting a company, angel investors, or experienced small business owners. Monthly meetings could provide a forum for networking between business start-ups and investors. Each event could include a speaker to educate the members on a different aspect of starting a new business. Involving recently laid off or retired individuals could spark ideas for new businesses and keep them in Broome County. Many of these people are looking for anything that will help them remain in the region. The theme of these events could be "Difficult time finding a job? Struggling whether to move to a different city to find a job? Start your own here and you won't have to move!"

Recommendation 3:

Make new people feel welcomed in the community

Action Item:

Establish a mentor program

Several Broome County employers mentioned a problem with new hires not feeling welcomed in the community. To combat this, many communities offer a mentor program to help integrate new residents. In this program, Broome residents would volunteer to introduce new people to the region. For example, they could organize a

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monthly dinner at locally owned restaurants, plan a shopping trip, or invite them to local sporting events. This is a workforce retention tool - when people feel welcomed they are more likely to stay. The mentor program could be offered within individual companies or through an organization such as the Chamber of Commerce.

Action Item:

Create an international center/association to welcome a diversity of individuals

As discussed in this report, another common concern of employers is that Broome County lacks diversity. The university and college, however, contain highly diverse student populations that are poorly integrated into the community at large. Local leaders should initiate an international association where individuals from a variety of racial and ethnic backgrounds can meet each other. This organization could create the friendships that retain people within a community.

Action Item:

Create a welcome to Broome County package for new hires

Develop a welcome package to present to new people in the community. This package could include items such as a map of the area, calendar of local activities, or coupons to local businesses. Request community volunteers to make a welcome visit and personally deliver the package.

Finally, economic development requires an intimate relationship between local educational institutions and regional economic development efforts. Availability of skilled workforce is a top factor in site decisions for many high tech companies. University research and development programs have been a driver for economic development in the

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most successful technology regions, such as Stanford and the Silicon Valley or Harvard and MIT in Massachusetts. **BU's R&D activities should be supported and promoted by community leaders. In turn, the community should be actively involved in promoting Broome County and creating a community that retains its supply of skilled graduates.**

Recommendation 1: Build Binghamton University's relationship with the community

Action Item: Work together to solve joint concerns

The need for graduate student housing is a commonly voiced concern in Broome County. The need for multifamily housing and downtown redevelopment are also a concern for retaining young professionals in the community. These common issues could be solved together, for example, by creating a downtown housing area, mixed between larger apartment units and graduate student apartments. This could bring young people into the downtown areas, revitalizing business, and give the city a vibrant inner core.

Action Item: Improve co-op and internship programs between BU and local employers

The retention of local employers and workers is a major concern for economic developers. Providing its students with a top quality education is the primary objective of the university. These goals compliment one another. BU should initiative a co-op program for its students and place students in local companies. During interviews in Broome County, many employers noted the lack of interns and co-ops available from

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BU. Several mentioned that they go outside of the community to find student workers. Additional input indicated that students are more likely to stay in Binghamton after graduation if they have co-oped with a local company beginning in their early years of college.

University representatives should meet with local employers in each of Broome County's target industries. During these meetings, determine exactly what skills employers are searching for then create a co-op program model that could be adopted by university departments specializing in those skill areas.

Action Item: **Support research and academic activities that compliment the region's target industries**

Broome County economic development leaders should support research and development activities of BU. BU is already involved in a multitude of activities related to Broome County's economic goals. Research and development in the field of sensors, protein dynamics, and military communications are outstanding attributes for initiatives targeting electronics, biotechnology, and Broome County with a knowledge base rivaled by few other communities. Support could come in the form of, for example, community - BU cooperation in the creation of a biotechnology and/or electronics incubator.

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The community should also send a clear message that it supports BU's proposed non-profit model for new business formation. This model would transfer target industry technologies out of research laboratories and universities and back to Broome County, forming the core of new businesses and attracting venture funds from state sources. In the long-term, programs like this would generate a cluster of technology entrepreneurs and jobs to retain skilled workers in the community.

Recommendation 2: Involve Broome Community College and Binghamton University in economic development marketing

Action Item: Internally promote BCC and BU workforce development programs to local employers

BCC offers coursework in electronics, computer science, and health care that are critical to the recruitment of businesses in the target industries. Highlight those courses that meet skill demands of target industries. Involve BCC program staff to be active in economic development marketing – developing marketing information directed at employers that promotes the fresh “supply” of skilled individuals coming out of BCC.

Action Item: Develop materials and include on Broome County's economic development website information about how BCC and BU meet the workforce needs of target industries

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Create a standardized marketing piece touting the university and college's activities in target industry fields. This could be in the format of a one-page, well-designed flyer specific to each of the five target industries. Economic developers should include this tailored collateral in correspondence with prospects. Also, include this information on a page within future community marketing websites.

Action Item:

Include BCC and BU representatives in meetings with prospects

At least one representative from BCC and BU should be identified to represent their schools in economic development activities. These individuals should be prepared to communicate the same marketing messages as other economic development leaders. They should also be invited to join Broome County delegations traveling to other regions to market the region. These individuals should be included in every itinerary with prospects.

Integrating the BCC and BU in activities with prospects benefits the region by showing community-wide support for economic development. A coordinated effort such as this is appealing to companies considering a new location or expansion in Broome County. An effort such as this will also showcase workforce development programs and lead to increased utilization of those services. As Broome County expands, so will the professional opportunities for students and graduates.