

- APPENDIX -



**NIAGARA BINATIONAL
REGIONAL ECONOMIC PROFILE**

**Niagara BiNational Region Economic Roundtable
September 2002**

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INTRODUCTION

The Niagara BiNational region is a dynamic center of trade and economic vitality spanning one of the world's busiest international borders. The region covers some 3,700 square miles / 9,600 square kilometers and includes – in Ontario, Canada – the regional municipalities of Halton and Niagara and the City of Hamilton, and – in the State of New York, United States – the counties of Erie, Monroe and Niagara. Niagara BiNational contains a critical mass of border crossings between the world's two largest trading partners, with recent years witnessing annual trade values of approximately \$80 billion (US\$) traversing the area – nearly one-third the value of *all* trade between Canada and the United States. The North American Free Trade Agreement has served to grow the volume of this trade by an annual rate of 20 percent, and promises continued opportunities for the region's position as a major international trade corridor.

***Niagara BiNational is
an international
gateway and center for
trade and commerce***

The region's proximity and access to major international waterways, interstate trade corridors, and much of North America's population concentration and financial activity further contribute to its economic vibrancy. One day's drive from the region provides access to more than half of the population in both Canada and the United States – over 130 million customers, and nearly \$15 trillion in yearly personal income. Within the region itself are a series of major urban centers of economic and cultural activity, including Buffalo and Rochester in the United States, and Hamilton and Burlington Canada with Niagara Falls spanning the border.

Niagara BiNational's size, location, and position as the center of a significant amount of international trade have greatly contributed to the region being branded as a true "gateway" to the entire North American marketplace.

REGIONAL ECONOMIC DEVELOPMENT CLUSTERS

Niagara BiNational's priority development clusters integrate the region's higher ed infrastructure with its industrial heritage and strategic location. The clusters build on the region's high-quality workforce and chart a course for maintaining and enhancing Niagara BiNational's long-term economic vibrancy.

For this profile, each community in the region was asked to identify their highest priority clusters. Their responses are indicated below.

❖ Halton Region

- Advanced Manufacturing
- Transportation Equipment
- Information Technologies and Services

- Tourism
- ❖ City of Hamilton
 - Industrial/Manufacturing
 - Biotechnology/Health Care
 - Aerotropolis (Airport)
 - Information Communications Technology
 - Agri-Business
 - Film Offices
- ❖ Niagara Region
 - Advanced Manufacturing
 - Tourism Investment
 - Agri-Business
 - Trade
 - Tourism Destination Marketing Organizations
- ❖ Erie County
 - Medical Research and Products
 - Professional Support Centers
 - Canadian-Owned Firms
 - Logistics and Distribution
 - Auto Parts Manufacturing
 - Tourism
- ❖ Monroe County
 - Photonics and Imaging
 - Precision Manufacturing
 - MIS/IT Business Services
 - Telecommunications
 - Biotechnology/Pharmaceutical/Medical Research
- ❖ Niagara County
 - Information Technology

- Medical Technology R&D
- Medical Device Manufacturing
- Back Office Operations
- Warehousing and Distribution
- Tourism

Niagara BiNational Clusters

Based on CGR's analysis of these clusters and regional economic resources, the following are proposed as Niagara BiNational clusters:

- ❖ **Advanced Manufacturing**
- ❖ **Transportation Equipment**
- ❖ **Information Technology and Data Processing**
- ❖ **Telecommunication**
- ❖ **Tourism**
- ❖ **Bioscience**
- ❖ **Transportation and Distribution**
- ❖ **Agriculture and Food Processing**
- ❖ **Higher Education**

Advanced Manufacturing

The Niagara BiNational Region has a longstanding investment in manufacturing. The region has historically been a manufacturing leader, especially in industries such as flour and steel. Building on this rich history and advanced processes, these communities have many employers continuing this tradition today and keeping Niagara BiNational on manufacturing's cutting edge.

Advanced manufacturing is typically technology-intensive, and involves the research and development of equipment and processes capable of creating precision components for a variety of final products. The region boasts a vibrant advanced manufacturing sector, with major companies such as Dofasco and Stelco in primary metals; Eastman Kodak in high speed coatings; Moog and Gleason Corporation in precision control components and systems; and Orlick Industries in die casting and machining.

The region has many resources integral to the continued development of an advanced manufacturing cluster. Among them are low cost power, comprehensive transportation infrastructure, and a competitive cost structure necessary to compete in manufacturing

industries where production is generally energy-intensive and workforces are often larger than in other industries. In addition, the region has a critical mass of colleges and universities that support training and research and development activities.

Each of the communities of Niagara BiNational identifies advanced manufacturing as a priority development cluster. The region's manufacturing history and existing industrial base – complemented by its bi-national market accessibility, transportation infrastructure, critical international distribution location, educational infrastructure and the presence of component manufacturers on either side of the border – make advanced manufacturing a natural focus for the region's long-term development.

Transportation Equipment

The production of automotive components is another cluster in which Niagara BiNational is an industry leader. The region's access to bi-national distribution networks has helped make it a natural location for primary production and assembling of automotive and other transportation equipment.

The association between advanced manufacturing and transportation equipment is very close in Niagara BiNational. For example, while advanced manufacturing companies like Dofasco and Stelco sell to more than the automotive equipment market, the transportation industry remains a major customer for both. Even in precision manufacturing, many of the region's machining and tooling firms, such as Gleason Works, supply the automotive equipment market.

A significant number of Niagara BiNational's workers are employed at transportation industry leaders, such as Ford Motor Company in Halton Region and Erie County; General Motors in Niagara Region and Erie County; Delphi Automotive Systems' Harrison Thermal Division in Niagara County and Energy/Chassis Division in Monroe County; and Valeo, American Axle and National Steel Car.

The region's transportation equipment sector is pointed to the future as well. General Motors recently invested nearly \$300 million to expand its powertrain facility in Erie County and develop a production line for its "New World Engine." GM also opened its fuel cell research facility in Monroe County in 2002. The facility will extend GM's research and development of hydrogen fuel cells for use in vehicles, and hold promise for use as power sources in non-automotive products as well. Niagara BiNational is developing the transportation technologies of tomorrow.

Information Technology and Data Processing

This cluster includes computers, the R&D of hardware and software, and the computerized applications of that equipment. Niagara BiNational is home to many companies focused on the development of the computer technologies of tomorrow, and

others successfully applying knowledge-based skills in providing data services to customers in the region and beyond.

Paychex, Inc., based in Monroe County, is one of the nation's leading providers of payroll, human resource and benefits services to small- and medium-sized businesses, with nearly \$1 billion in annual service revenues. Monroe County's vibrant information technology sector also includes CVC/Veeco (metrology and process equipment provider to the semiconductor, data storage and telecommunications industries), Hover-Davis (component delivery systems provider), and The Sutherland Group (software development, support and data warehousing services). Ingram Micro employs 2,000 in Erie County, in the distribution of microcomputer products and information services. Erie County is also home to the back office data processing operations of two of the region's largest financial institutions – HSBC Bank USA and M&T Bank. NuComm International employs 2,000 in Niagara Region in the areas of e-business and database management.

Telecommunication

A vibrant and growing telecommunications industry is a clear product of the region's position as a continental hub of telecommunications infrastructure. The region benefits greatly from its border location, sitting atop some of the largest broadband hubs in North America. Fiber optic trunk lines from some of the world's leading telecommunications companies – including Sprint, Verizon, Bell-Canada and AT&T – cross the region, evidence of this strategic bi-national location.

The region is focused on both the service and equipment sides of the telecommunications industry. Verizon, Time Warner, Choice One, PaeTec and NuComm International are at the core of a vibrant telecom sector in Niagara BiNational. Together, they provide communications and wireless solutions to the region and beyond. In the competitive race for enhanced bandwidth and communications equipment, the

The region's priority sectors build on its history, economic base, vast educational network and inherent bi-national advantages.

region is similarly on the cutting edge. Monroe County is home to Bausch & Lomb, Corning Tropel and Corning Rochester Photonics, researching and developing the light- and wave-guided technologies of tomorrow's communication networks. Monroe County will also be the center of a newly-designated Center for Infotonics, a \$130 million initiative to secure the region's position in photonics and fiber optic equipment research and development.

Tourism

Niagara BiNational's "natural" resources draw investment and opportunity related to *Tourism*. Most obvious is the region's bi-national border demarcated by one of the Wonders of the World, Niagara Falls. Niagara's growing base of diverse attractions has made the region a year-round destination for culture and entertainment.

A related attraction already drawing visitors to Niagara BiNational is the region's growing agri-tourism industry centered in Ontario. Regional and local agricultural policies in Niagara have been synthesized with the region's long-term economic development strategy to encourage the further development of an agri-tourism draw capitalizing on the area's vineyards and vibrant wine production industry. Vineland Estates Winery in Niagara Region is one of Niagara BiNational's largest wine producers, and Constellation Brands in Monroe County is the second-largest wine producer in the world. Across the Finger Lakes and Niagara Region, more than 120 wineries operate.

The tourism focus builds on a series of strategic advantages found in the region, which sits at the center of the Toronto-Hamilton-Niagara-Buffalo-Rochester "Golden Horseshoe". Niagara Falls is the leading destination in all of Ontario, accounting for 40 percent of the province's tourism and visitor industries. Together, Niagara Falls, New York and Niagara Falls, Ontario attract more than 20 million visitors annually. Niagara Region projects sustained tourism growth in the coming years, yielding 30 million visitors spending over \$2.3 billion in 2016. Casino Niagara's ongoing expansion promises to contribute to that growth.

Beyond the attractions themselves, the region boasts the hard infrastructure and support services capable of serving a large tourism industry. Air transportation and roadways provide seamless access to and from the region, and lodging and related services are plentiful. The region's proximity to two international markets caters to day-trip visitors as well. The proximity of complementary attractions makes Niagara BiNational home to a series of tourist draws.

In recent years, officials on both sides of the border have focused their efforts on planning and developing this sector in more strategic fashion in the coming years. Governments across Niagara BiNational have pledged a commitment to the long-term development of strategies and partnerships for growing tourism-related industries. The emerging Bi-National Tourism Alliance is one example of the cross-border collaborative networks recently established to facilitate the growth of tourism in Niagara BiNational.

Niagara BiNational is more poised than ever to see significant growth in tourism. Its locational and natural advantages make this cluster focus a logical one, and offer great potential for the long-term vitality of this industry.

Bioscience

Another regional development priority is *Bioscience*. Another product of the region's comprehensive educational infrastructure, this research-intensive sector focuses on the development of biomedical and pharmaceutical products and medical equipment. Significant recent investments in this cluster throughout the region – largely to facilitate research work and spin-offs at institutions like McMaster University (Hamilton), the University of Rochester (Monroe), and the University at Buffalo (Erie) – soundly position Niagara BiNational to benefit from its long-term expansion.

Niagara BiNational's network of prominent research universities contribute greatly to a research and development infrastructure integral to the growth of bioscience industries. Academic and support services provide not only the research facilities and resources, but also train the researchers of today and tomorrow to facilitate long-term industry expansion.

Niagara-BiNational is at the heart of an emerging medical device cluster of nearly 900 medical industry companies. The region boasts many prominent life sciences corporations, researching the ortho-clinical diagnostics and treatments of tomorrow – Hauptman-Woodward Medical Research Institute; Roswell Park Cancer Institute; Johnson & Johnson; Medeva PLC; Wyeth-Lederle; Vaccinex; and Bristol-Myers Squibb among them. Erie County's Center for Excellence in Bioinformatics; Hamilton's Biotechnology Incubator; and the Aab Institute of Biomedical Sciences at the University of Rochester are significant pieces of the region's billion dollar-plus commitment to developing this sector. Beyond R&D is the provision of clinical services at prominent health facilities like Roswell Park Cancer Institute and Strong Memorial Hospital.

Though the bioscience industry is in its early stages in Niagara BiNational, the region's primary resources will enable it to capitalize on early successes. The near-universal presence of this cluster priority across the region's component communities represents another potentially exploitable advantage in the coming years.

Transportation and Distribution

Transportation and Distribution represents another core economic cluster targeted for growth by Niagara BiNational. The region's position as an international hub of transport and commerce, complemented by a comprehensive and growing regional transportation infrastructure, affords Niagara BiNational significant opportunity to develop its transport-related industries in warehousing and distribution. Border access across a pivotal continental trade passageway cannot be understated when considering the future potential of this industry. The long-term importance of transportation and distribution industries to the region's economic expansion is evidence of Niagara BiNational's enormous locational advantage of lining a significant portion of the world's most heavily traded-across border.

Location is vital to developing a vibrant transportation and distribution sector, and Niagara BiNational's proximity to the bi-national market is an invaluable resource. The region's intermodal-friendly access is another feature integral to maintaining a strong transportation and distribution cluster. The region boasts a series of international airports and accessible water ports in addition to well-developed highway and rail infrastructure. Among the firms focused on the development of the region's distribution sector are Hamilton's Tradeport International and Fluke Transportation Group and Niagara Region's PBB Global Logistics.

The region's international bridges facilitate the transport of more than \$80 billion in annual goods between the United States and Canada. One day's travel affords distributors access to more than half of the U.S. population and two-thirds of the Canadian population.

Agriculture and Food Processing

Agriculture and Food Processing is another priority cluster that benefits from Niagara BiNational's location. Abundant arable land and proximity to the bi-national marketplace provide the region with strategic advantages that contribute to a vibrant sector in agriculture and food processing.

The cluster includes the production of primary foodstuffs as well as the manufacturing of food products, which differentiates it from the tourism-oriented side of agri-business. Niagara BiNational has an abundance of companies in the fruit and vegetable production, dairy farming and viniculture, the latter of which is predominantly concentrated in the Finger Lakes region of Western New York and the wine country of Niagara Region. Major food processing companies in the region include Rich Products, which employs 1,600 in Erie County; Constellation Brands in Monroe County, the world's second-largest wine producer; and Cadbury Schweppes. More than 50 wineries operate within Niagara Region, complemented by over 70 in the Finger Lakes region.

Not unlike the region's other economic clusters, agriculture and food processing benefits greatly from Niagara BiNational's higher education infrastructure. The Cornell Agriculture and Food Technology Park and Vinification Laboratory, Brock University Cool Climate Oenology and Viticulture Institute, and New York State Agricultural Experiment Station are integral parts of the region's long-term commitment to enhancing its position as a major agriculture producer and food processor.

Higher Education

The Niagara BiNational Region boasts an impressive cluster of *Higher Education* institutions. Nearly sixty colleges and universities call the region and its surrounding area home. In addition to enrolling hundreds of thousands of students from both inside and

outside the region, they contribute greatly to the economic vitality and long-term development potential of industry in the region.

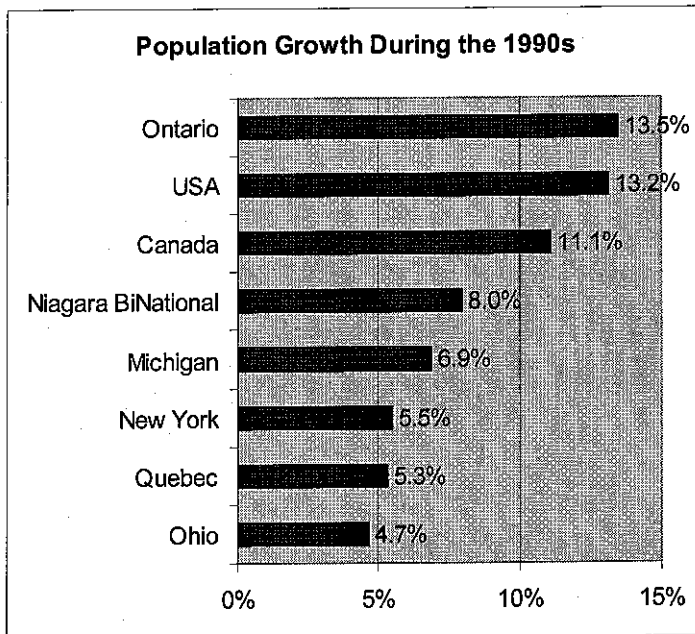
The region has both large research-oriented colleges and universities – such as the University at Buffalo, University of Rochester, Rochester Institute of Technology and McMaster University – and smaller community colleges – like Sheridan College, Niagara University, Niagara College and Monroe Community College – focused on training and skill development. As well, immediately outside the region are the prominent educational resources of the University of Toronto, Cornell University and Syracuse University, among others.

This academic mix greatly benefits the region, providing it with venues for discovery and development as well as enhancing workforce skills to meet with evolving industry demands. Substantial collaboration between academic institutions and industry has been the result. The Niagara BiNational Economic Roundtable's *SmartCatalog* will facilitate such collaboratives in the region, and points to the mutual benefits that they have afforded both higher education institutions and the business community.

SOCIOECONOMIC DESCRIPTION OF NIAGARA BINATIONAL ECONOMIC REGION

Regional Population

Niagara BiNational was home to approximately 3.2 million people in 2000, an increase of slightly more than four percent since the start of the 1990s. When the Greater Toronto Area is added to the region, the population rises to 7.8 million, with growth during the 1990s totaling eight percent.



The region continues to grow in total, though not all component communities have experienced an equal expansion. The most dramatic recent growth has occurred among the Ontario communities. Population in Halton and Hamilton increased by 19 percent and 7 percent during the decade, respectively. Growth in Halton, Hamilton and Niagara is projected to continue over the next two decades at a rate of 28 percent.

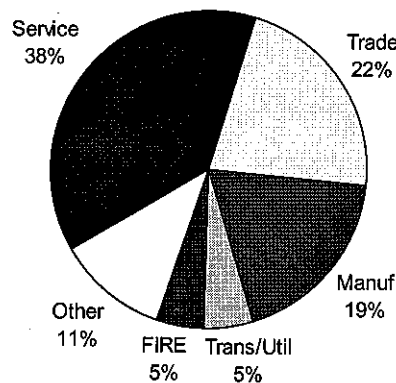
The region's communities in Western New York have seen limited growth and, in some areas, population decline. While Monroe County and the Greater Rochester region have experienced slight growth, the Buffalo-Niagara Metropolitan Area shed population at a rate of more than 1 percent. Despite some losses among the Western New York counties, the region continues to be a major population center. Erie County, the largest municipal component in the region, has more than 950,000 residents, while Monroe County contributes a marketplace of more than 735,000.

Despite a population growth rate that lagged behind other state and national figures, Niagara BiNational remains one of the largest corridors of international trade and densely populated urban marketplaces of any international border in the world.

Regional Economic Diversity

Niagara BiNational maintains a healthy mix of industry. Services account for the greatest proportion of jobs within the region, representing more than one-third of the total. Manufacturing industries are the second-largest employment category, at roughly seventeen percent of all jobs.

**Employment Concentration by Major Industry,
Niagara BiNational Region (May 2002)**



The region continues to make a healthy transition to a more service-based economy, though it still reaps benefits from a critical mass of typically higher-wage manufacturing industries. Recent employment figures indicate that manufacturing employment is roughly 300,000 in the Niagara BiNational region, with more than half of that

located in the counties of Monroe and Erie.

Service employment, particularly in business and computer-related services and a vibrant tourism industry, is significant at more than 580,000. The impact of tourism on the Regional Municipality of Niagara and Niagara County is particularly evident, with a combined 85,000 service jobs located across the two communities.

The region's high population and vibrant tourism industry have also contributed to a large retail sector, which accounts for more than 16 percent of Niagara BiNational's employment.

An additional 10 percent of the region's workers are employed in government services, with concentrations especially apparent in Erie (Buffalo) and Monroe (Rochester) counties in New York.

A snapshot of Niagara BiNational's leading employers reveals that they cover a wide variety of industries and are geographically spread throughout the region.

Largest Employers ~ Niagara BiNational Region (2001-02)

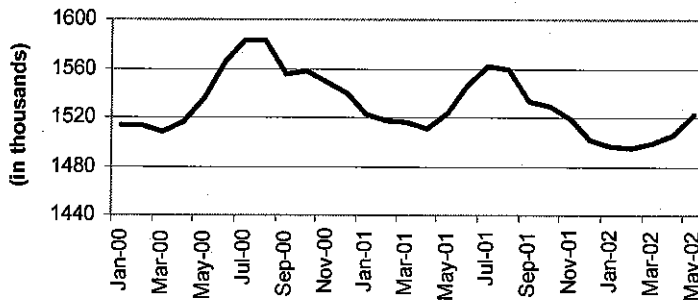
Company	Location	No. of Employees (Estimated)
Eastman Kodak	Monroe County	24,640
University of Rochester	Monroe County	12,920
Xerox	Monroe County	11,500
Hamilton Health Sciences	Hamilton	9,238
Stelco	Hamilton	7,800
Dofasco	Hamilton	7,200
ViaHealth	Monroe County	7,000
Kaleida Health	Erie County	6,440
Wegmans Food Markets	Monroe County	5,438
HSBC Bank USA	Erie County	5,300
Ford Motor Company	Halton Region	5,100
University at Buffalo	Erie County	5,000
Delphi-Harrison Thermal	Niagara County	4,750
General Motors	Erie County	4,000
M&T Bank	Erie County	4,000
General Motors	Niagara Region	4,000
Casino Niagara	Niagara Region	3,793
McMaster University	Hamilton	3,380
Tops Markets	Erie County	2,970
American Axle	Erie County	2,900
Excellus	Monroe County	2,864
Unity Health	Monroe County	2,809
Delphi Energy & Engine	Monroe County	2,700
Valeo	Monroe County	2,565
Rochester Institute of Tech	Monroe County	2,546
Rochester Gas & Electric	Monroe County	2,260
Verizon	Erie County	2,050
Moog	Erie County	2,000
NuComm International	Niagara Region	2,000
Ford Motor Company	Erie County	1,900

Sources: Niagara County Department of Economic Development; Business First of Buffalo; Buffalo-Niagara Enterprise; Monroe County Department of Planning and Development; City of Hamilton Economic Development Department; Halton Region Business Development Centre; and Niagara Economic & Tourism Corp.

Regional Economic Trends

The Niagara BiNational Region boasts a labor force of 1.63 million workers (May 2002). This reflects not only the region's relatively high population density, but its access to labor pools outside of the immediate region. Since January 2000, the size of the region's labor force has expanded by 2.2 percent. Ontario's Economic Region 550* grew the most, experiencing a 6.5 percent expansion in labor force size courtesy of an especially impressive year 2000.

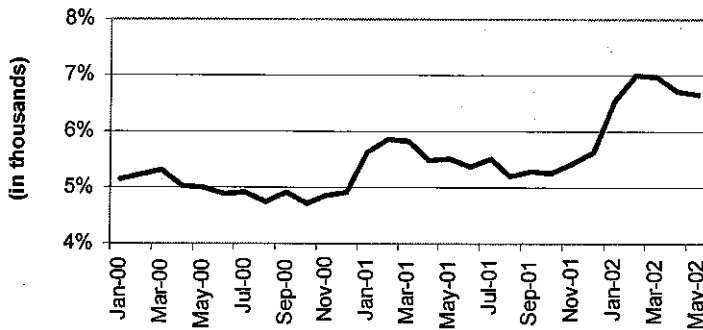
Labor Force Employed, Niagara BiNational Region
(Jan '00 - May '02)



The number of jobs in the Niagara BiNational region grew just under one percent since the start of 2000 to 1.52 million. Economic Region 550 grew by an impressive 3.1 percent rate. Its growth rate in 2000 was twice that of the province as a whole.

Niagara BiNational's unemployment rate stood at 6.6 percent in May 2002. Like most other North American regions, the region's unemployment rate rose slightly over the past two years. Most of the increase was accounted for during 2001 and the first half of 2002, after general declines in unemployment during the year 2000. The rate increased 1.5 percentage points between the start of 2000 and May 2002, after dropping slightly (0.2 percentage points) during 2000. For the entire series, slight drops in the unemployment rate in Erie (-0.3) and Niagara (-0.6) counties were balanced by minor

Unemployment Rate, Niagara BiNational Region
(Jan '00 - May '02)

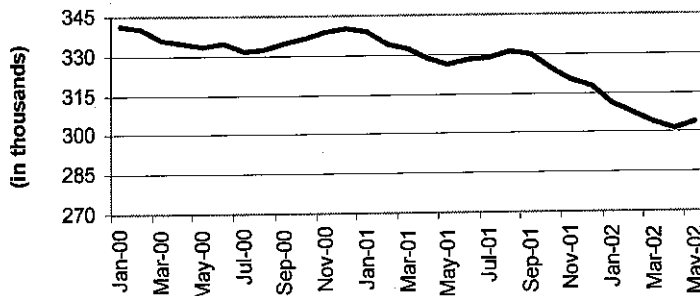


* Economic Region 550 covers the Niagara Peninsula – Halton Region (Burlington only); Hamilton-Wentworth; Niagara Region; Haldimand-Norfolk; and Brant. Roughly 41 percent of Halton is included in ER 550. The rest is in ER 530, which also includes Toronto. Including ER 530 would bias this analysis' results considerably, given the disproportionate weight of trends in Toronto. As such, ER 530 is not included in these analyses. Note: Approximately 21 percent of ER 550 is comprised of Haldimand-Norfolk and Brant County; the remainder is Niagara BiNational.

increases in the rates for Monroe County (+1.5) and Economic Region 550 (+3.0). Niagara BiNational's manufacturing sector has begun to bounce back after a decline that began in the wake of September 11th, 2001.

The region's economy still boasts a significant manufacturing component, with more than 300,000 jobs. Manufacturing in Niagara BiNational underwent sustained growth in the second half of 2000. Since the start of 2000, however, the number of jobs in these sectors fell roughly 11 percent, a faster decline than both New York State (down 8.1 percent) and Ontario's (up 4.6 percent).

Manufacturing Empl, Niagara BiNational Region
(Jan '00 - May '02)

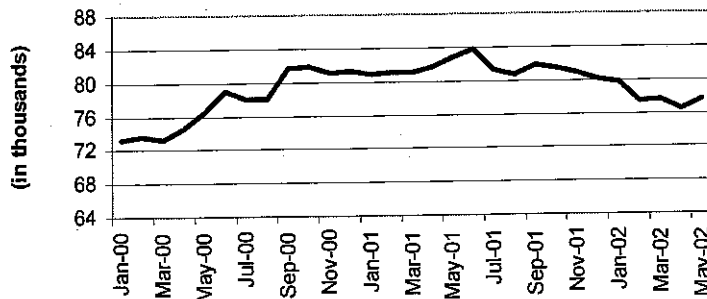


No single part of the region escaped the downward trend in manufacturing employment in the past two years – the Buffalo-Niagara Falls MSA shed nearly 7 percent of its jobs in manufacturing industries, with the Rochester MSA and Economic Region 550 experiencing 11 and 13

percent reductions. Despite these recent declines, the region's existing critical mass in manufacturing industries suggests that jobs in these sectors will remain significant contributors to the regional economy.

Employment growth in other major industrial categories between 2000 and 2002 was similarly mixed. Transportation and utilities employment grew in excess of 6 percent region wide during the period, to nearly 78,000 jobs in May 2002, outpacing both the province (+5.2 percent) and the state (+0.8 percent) during the same period. The industry experienced sustained growth through late 2001, with slight losses occurring after September 11th.

Transport/Utilities Empl, Niagara BiNational Region
(Jan '00 - May '02)

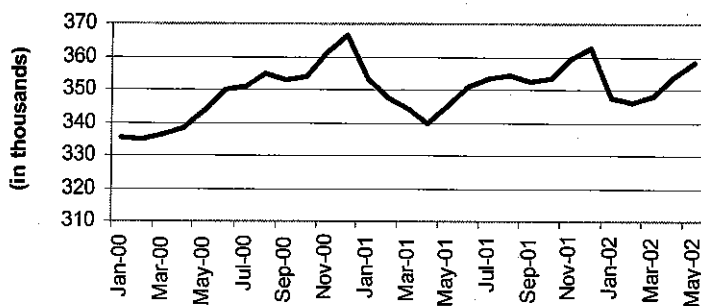


Overall, Niagara BiNational added 4,500 positions in transportation and utilities during the two-plus years, with growth evident in each of its component economic regions – Economic Region 550 expanded by nearly 9 percent, with the

Rochester and Buffalo-Niagara MSAs adding jobs at rates of 5.4 and 3.8, respectively.

The region's trade industries have enjoyed generally healthy growth since January 2000. Overall, Niagara BiNational added positions to its wholesale and retail trade industries at a rate of 6.8 percent in the period through May 2002, considerably outpacing the respective provincial and state growth rates of 5.2 and 0.9 percent during the same

Wholesale/Retail Empl, Niagara BiNational Region
(Jan '00 - May '02)



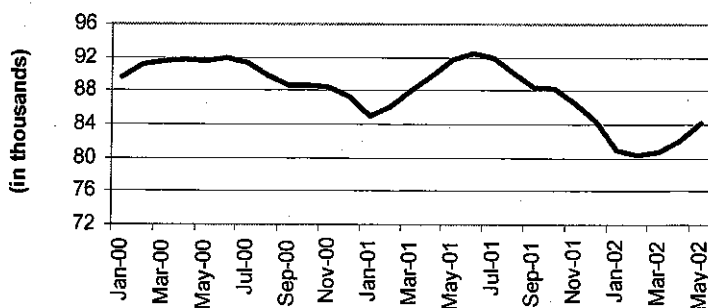
period. Nearly 23,000 new positions have been created in these industries in Niagara BiNational since the start of 2000. Economic Region 550 showed the greatest wholesale/retail trade growth, expanding by nearly 24 percent during the period. The Rochester MSA grew by more than

1.2 percent during the same period, with Buffalo-Niagara Falls declining by less than one-third of one percent. Overall, Niagara BiNational's wholesale and retail trade industries enjoyed impressive growth over the past two years.

Employment in the financial, insurance and real estate industries in Niagara BiNational between 2000 and 2002 was mixed. While both the Buffalo-Niagara Falls and Rochester MSAs experienced impressive growth during the period, Economic Region 550 shed 21.4 percent of its employment in these industries, some 8,400 positions.

Buffalo-Niagara Falls and Rochester expanded their FIRE industries by 6.7 and 4.3 percent, respectively. The ER 500 decline over-balanced the gains seen in the New York MSAs, however, pushing Niagara BiNational's to a 6.1 percent loss for the entire period.

FIRE Empl, Niagara BiNational Region
(Jan '00 - May '02)



The performance trailed both the provincial (up 2.3 percent) and state (down 3.0 percent) averages.

Service employment showed positive gains across the Niagara BiNational Region from January 2000 to May 2002. Overall, jobs in service industries were up 5.4

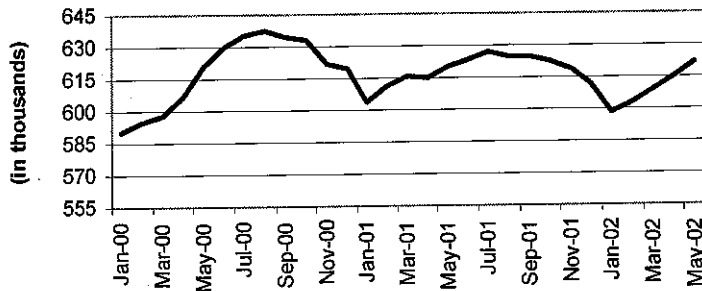
percent for the period. The performance was roughly on par with that of New York State (up 5.4 percent) and Ontario (up 5.6 percent) during the same period.

Gains were seen in all of the region's component economic regions, with Economic Region 550 leading the way, up 6.5 percent. Much of that growth was concentrated in health care services, particularly in 2000. HRDC Canada reports that construction and

educational services were among the Economic Region 550 chief gainers in 2000, particularly in Hamilton.

The Rochester MSA grew by 6.2 percent, while Buffalo-Niagara Falls added 4,800 service jobs, an increase of more than 2.8 percent.

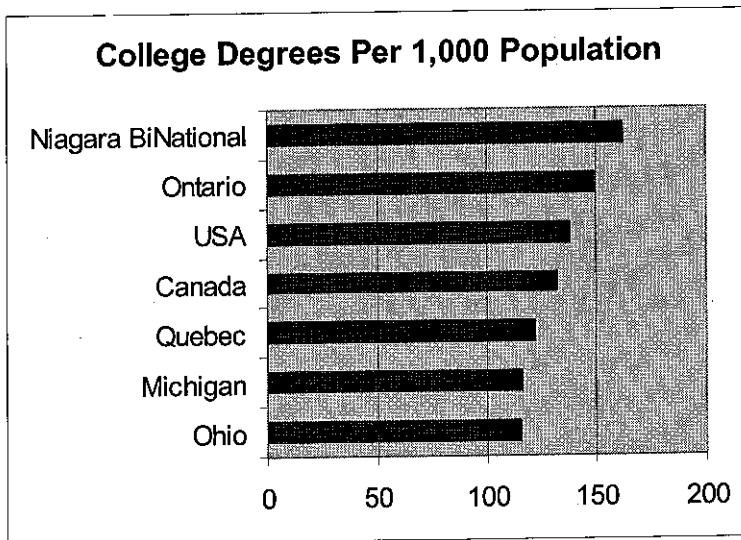
Service Empl, Niagara BiNational Region
(Jan '00 - May '02)



Regional Labor Force Quality

As noted above, Niagara BiNational is home to a substantial employment concentration with more than 1.6 million jobs across the region. More than half of these are concentrated in the New York counties of Erie (27 percent of the regional total) and Monroe (23 percent), with Economic Region 550 accounting for an additional 43 percent. Niagara County represents roughly 6.5 percent of the region's labor force.

College Degrees Per 1,000 Population



Niagara BiNational has capitalized on technology, advanced manufacturing, and scientific research in recent years, and appears poised to further expand development in these industries particularly because of the educated nature of the region's workforce. The region boasts an average of 162 four-year degrees (or higher) per 1,000 population, rating it above

the Ontario provincial, US and Canadian rates. It further outpaces other larger regional, provincial and state markets such as Quebec, Ohio and Michigan.

The region adds to its workforce in significant continuing fashion as well, graduating tens of thousands of students from a host of two- and four-year colleges and universities. Among the largest are the University at Buffalo, Buffalo State College and Canisius College in Erie County; the University of Rochester and Rochester Institute of Technology in Monroe County; Niagara University in Niagara County; Sheridan College in Halton; McMaster University, Wilfrid Laurier University and Mohawk College in Hamilton; and Brock University and Niagara College in the Niagara Region.

Hundreds of thousands of students are enrolled in full- or part-time undergraduate and post-graduate degree programs across the region's nearly sixty colleges and universities, which offer more than 2,000 academic program tracks.

Conclusion

Niagara BiNational remains a growing, vibrant region of diverse markets, inordinate geographic advantages, and an economy that remains competitive. The local market bases of its component communities give Niagara BiNational a varied mix of industries and investment – from automotive and technology-intensive manufacturing to steel production; from financial services to telecommunications and tourism. Each of the six communities that make up Niagara BiNational brings complementary competitive strengths to the region.

***Each of Niagara
BiNational's
communities brings
complementary
competitive strengths.***

As a region, Niagara BiNational has grown to nearly 3.2 million – an increase of more than four percent since the start of the 1990s. Perhaps even more impressive are the projected growth rates for this region of already-densely populated urban marketplaces.

Education is as important as any other factor in the long-term vitality of regional economies today and into the future. On this point, Niagara BiNational is exceptionally poised to cultivate jobs and investment. The region's comprehensive infrastructure of higher education institutions promise employers an expanding labor force possessing high skill levels, while at the same time researching the technologies, products and skills of tomorrow's economy.

The Niagara BiNational Region amalgamates the competitive advantages and economic complements of six communities – Erie County, Halton Region, Hamilton, Monroe County, Niagara County and Niagara Region – in a consortium that harnesses the assets of each to realize the collective potential of this unique bi-national region.

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SmartCatalog
A Guide to Academic-Industry Partnerships
in Niagara BiNational

**Niagara BiNational Region Economic Roundtable
September 2002**

Introduction

This *SmartCatalog* guide highlights the value of partnerships among colleges and universities, business and industry, and the public sector in the Niagara BiNational Region. It considers the benefits of those partnerships and is intended as a companion to *SmartCatalog Online*, housed on www.NiagaraBiNational.com. The comprehensive, searchable online database includes 612 research and training programs across 54 colleges and universities in Southeastern Ontario and Western and Central New York.

Together, these tools highlight the economic merits of academic-industry collaboration and provide an interactive venue for the academic, business and government communities to identify and engage potential synergies.

Colleges and Universities in Niagara BiNational

The Niagara BiNational Region – formed by the communities of Halton, Hamilton and Niagara in Southern Ontario and Erie, Monroe and Niagara counties in Western New York – is fortunate to have a comprehensive, diverse and prominent research and educational network. Nearly sixty collegiate-level academic institutions are located within the BiNational Region. Their size and focus are impressively diverse, ranging from small skills training-oriented community colleges to large universities committed to researching and developing the technologies, products and processes of tomorrow. Together, they represent an enormous resource to the employers and workforce that call the BiNational Region home.

Erie County, New York

- Canisius College
- D'Youville College
- Daemen College
- Erie Community College
- Hilbert College
- Medaille College
- State University of New York College at Buffalo
- Trocaire College
- University at Buffalo, State University of New York
- Villa Maria College

Monroe County, New York

- Monroe Community College
- Nazareth College
- Roberts Wesleyan College
- Rochester Institute of Technology
- St. John Fisher College
- University of Rochester

Niagara County, New York

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- Niagara County Community College
- Niagara University

Surrounding Area, New York

- Alfred University
- Cazenovia College
- Cornell University
- Finger Lakes Community College
- Genesee Community College
- Hobart and William Smith Colleges
- Houghton College
- Ithaca College
- Jamestown Community College
- Keuka College
- St. Bonaventure University
- State University of New York College at Alfred
- State University of New York College at Brockport
- State University of New York College at Fredonia
- State University of New York College at Geneseo
- Syracuse University
- Wells College

Halton Region, Ontario

- Sheridan College

City of Hamilton, Ontario

- Conestoga College
- McMaster University
- Mohawk College
- Wilfrid Laurier University

Niagara Region, Ontario

- Brock University
- Niagara College

Surrounding Area, Ontario

- Centennial College
- Durham College
- George Brown College
- Humber College
- Ryerson Polytechnic University
- Seneca College
- Tyndale College
- University of Guelph
- University of Toronto
- University of Waterloo
- University of Western Ontario
- York University

Benefits of Academic-Industry Collaboration

The past decade has witnessed an explosion in the number of, and investment in, collaborations between the private sector and colleges/universities in regions across North America. The potential benefits of these collaborations have grown as production processes have become increasingly complex and regions' unique competitive advantages have emerged as cornerstones of economic development strategies.

Partnerships between the private sector and a region's higher education institutions can be mutually beneficial arrangements that have a significant positive impact on training and a region's economy. Particularly in narrow industries or niches where a region boasts certain competitive advantages, collaborations can prove incredibly fruitful.

The Benefit to Business

Partnerships with government and the region's higher education institutions can improve the quality of the workforce and the competitive position of the region's business firms. These collaborations are particularly helpful in supporting the region's leading economic clusters. Business benefits from in-region training programs that graduate students readily trained in specific competencies and with the necessary skill sets to complete integral, and often complex, tasks. Academic institutions can provide training and research programs that address the unique workforce needs of specific clusters; the public sector can aid business by catalyzing the creation of networking institutions and by providing critical financial assistance.

The Benefit to Higher Ed

Partnerships with government and the region's private sector can also play a significant role in accomplishing the academic mission and boosting the prominence of a college or university in the region. Higher ed benefits from enhanced curricula and program demand; industry-specific educational and placement tracks; industry-specific educational and research expertise; and, oftentimes, access to additional program funding and an expanded student body. A close association among business, government and higher education helps colleges and universities avoid being trapped in the "Ivory Tower."

Types of Partnerships: Training and Research

Among the many advantages enjoyed by the Niagara BiNational Region is a prominent and comprehensive higher education network. This resource affords the region a uniquely strategic advantage in recruiting business and investment. It also provides countless venues for the valuable interaction of higher education and the private sector. The diversity of colleges and universities in the BiNational Region makes possible two major types of collaboration among business and higher ed: training and research.

The first type involves the training of students to meet specific needs of industries in the region. Strong industry training partnerships improve the school's curriculum, offer

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coop placements, and/or equipment and training, which leads to students trained to meet the specific needs of industry, locally and internationally. As importantly, training collaborations give industry representatives input on the training of future employees. They also provide venues for skill enhancement of existing workforces. The combined resources of the partners ensure that students are trained with the very latest technologies used in the industry. When students meet the needs of industry, placement rates rise, making the university or college more attractive to motivated students. Successful training collaborations therefore involve close, regular communication on the nature of the curriculum, the type of technology and the size and direction of the program.

The second type of collaborative program involves research that fuels industry innovation and growth. Collaboration and cooperation is more of a challenge in this instance. University professors face incentives that are driven by the need to publish in academic journals. The academic institution, the business and the community — often led by the public sector — have to create a new set of incentives that encourages an emphasis on research that directly serves business and the community.

Research partnerships provide companies with independent results, often at lower cost than doing the research themselves. The vast resources—both people and technology—of the colleges and universities provide the companies with far more than they could hire. And when students are involved in research, industry partners can build relationships with talented students early in their careers.

Factors of Success

What makes some collaborations successful and others less so? Based on a review of more than 50 existing partnerships in the BiNational Region, we present a list of characteristics that appear to be common to the most successful. Not every successful collaboration shares all of the listed characteristics; nonetheless, these appear to be some of the proven ways to insure that both the partnerships serve the economic interests of the region *and* the academic training and research mission is facilitated.

We judge the achievements of collaborations by their longevity, level of industry involvement, continuation of support from all partners, and industry employment of graduates.

The following factors stand out as important aspects of sustained success.

- ♦ **Founded in Strengths of Community** – Successful programs are rooted in the acknowledged strengths of the region or the academic institution. These strengths, often in very specialized areas, lead to formalized partnerships. The areas of strength chosen are often unique in the province or state, the nation, or even the world. Where these niche strengths exist in the region's economy, they

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are often reflected in the higher ed sector, providing natural opportunities for formalizing mutually beneficial partnerships.

- ◆ **Focused, but with Flexibility** – Successful programs meet the needs of both parties to the collaboration. Thus, they help to reinforce the incentives both have to sustain and enhance the engagement. They provide avenues for meeting industry's need for trained workers and product/process development, as well as for higher ed's mandate to offer industrially applicable training programs and "discover" knowledge through research. Still, successful programs are rarely limited strictly to activities that are directly applicable to immediate industry needs. University researchers typically conduct both basic and applied research, sometimes based only on personal curiosity. Similarly, training programs prepare students for anticipated future needs and with technologies that may not yet be fully deployed to local industry.
- ◆ **Effective Communication Among Partners** – Successful partnerships benefit from regular interaction between partners. This facilitates continual attention to what both industry and higher ed deem important and translates those priorities directly into student training and research. While successful programs do not limit their work only to immediate industry needs, many curriculum and research questions are discussed with industry partners. Their input is often sought in curriculum changes.
- ◆ **Diverse Sources of Funding** – Successful partnerships can be seen across a wide range of financial backing. Though a large budget is neither a necessary nor sufficient factor of success, most successful partnerships receive financial support from a variety of sources. Support from the home institution is used to support faculty, researchers and overhead expenses. Industry support, both from individual companies and industry associations, is typically used for projects that relate directly to present or anticipated industry needs. Government funding is often used to support these two areas or basic research that is too early for industry support.

SmartCatalog Online

One of the clearest challenges to collaborating is the identification of synergies between a region's business and higher education sectors. The Niagara BiNational Region Economic Roundtable presents a solution: *SmartCatalog Online*, a comprehensive, interactive database of more than 600 collegiate-level academic and research programs across Niagara BiNational's nearly 60 colleges and universities.

SmartCatalog Online is a web-based program that matches business with higher ed in Niagara BiNational. It empowers the private sector to identify regional training and research programs yielding benefits in employment sourcing, skill enhancement and

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product/process development. It will also serve as an indispensable tool for government and economic development officials.

By categorizing research and training programs in eight economic clusters, the database affords users the power to identify specific R&D and skill training programs in the BiNational Region. The specific clusters are derived from the *Niagara BiNational Region Economic Profile* (available at www.NiagaraBiNational.com):

- Advanced Manufacturing
- Agriculture and Food Processing
- Bioscience
- Information Technology and Data Processing
- Telecommunications
- Tourism
- Transportation and Distribution
- Transportation Equipment

SmartCatalog Online enables users to search for knowledge resources by cluster, community or institution. This tool makes possible the identification of synergies between the BiNational Region's private and higher ed sectors.

Through this interactive resource, today's economy meets tomorrow's knowledge resources.

Access SmartCatalog Online at www.NiagaraBiNational.com.

