

**Appendix A:**  
**Vision Task Force for the AdvantageWest Region**

The list below is those who attended the planning retreat in August 2003;  
most of these attended the other meetings as well

<b>Name</b>	<b>Organization</b>	<b>Title</b>
Bailey, K. Ray	A-B Tech	President
Bardo, Dr. John	Western Carolina University	Chancellor
Burnett, Dr. Jim	Western Piedmont Community College	Vice President
Burns, Dr. Gordon	Wilkes County Community College	President
Carroll, Dale	AdvantageWest staff	President & CEO
Caudle, Dr. Grainger	Mars Hill College	
Combs, Dr. Paul	Appalachian State University	Director, ARDI
Cue, Elaine	South College	Executive Director
Haire, Connie	Southwestern Community College	
Huskins, Betty	AdvantageWest staff	Vice President
Myers, Gordon	AdvantageWest board	Chairman
Leatherwood, Ron	AdvantageWest board	Vice Chairman
Lewis, Dr. Willard	Isothermal Community College	President
Linton, Brenda	Contractor: UNC-Chapel Hill	Independent consultant
McClure, Tom	Western Carolina University	Vice Chancellor
McDevitt, Wayne	UNC-Asheville	Vice Chancellor
Mitchell, Dr. Virginia	McDowell Technical Community College	President
Oglesby, Dr. Norman	Tri-County Community College	President
Rutherford, Greg	Haywood Community College	Dean of Workforce Development and Regional High Technology Center
Sink, Dr. David	Blue Ridge Community College	President
Stewart, Leslie (later Leslie Scott)	Contractor: UNC-Chapel Hill	Associate Director, OED
Williams, Dr. Thomas	Mayland Community College	President

In addition to the Vision Task Force itself, AdvantageWest convened its Economic Development Advisory Committee (EDAC) during this project, and that group consists of the local economic developers from the 23 counties, the NC Department of Commerce regional staff, and AdvantageWest staff. Those who were able to attend on October 8, 2003 were:

Chuck Abernathy, Madison County  
Mark Burrows, Transylvania County  
Ray Burrows, NC Commerce  
Dale Carroll, AdvantageWest  
Mark Clasby, Haywood County  
Paul Combs, ASU  
Tamera Crisp, Jackson County  
Scott Hamilton, Henderson County  
Gwen Harris, Yancey County  
Joe Holbrook, NC Commerce  
Betty Huskins, AdvantageWest  
Tom Johnson, Burke County  
Jim Lancaster, Rutherford County  
Kelly Pipes, Wilkes County  
Dave Porter, Asheville Chamber  
Sam Powers, AdvantageWest  
Ray Rapp, N.C. General Assembly  
Mac Williams, City of Asheville

## **Appendix B: Leadership Development Programs**

Leaders who understand the new economy and how to be effective agents of change for their communities are critical to the future of the AdvantageWest and other regions. This appendix provides a capsule summary of each of several existing programs in North Carolina and the nation.

### **University of North Carolina Asheville - Leadership Programs**

*Location:* Asheville

*Website:* <http://www.unca.edu/leadership/>

*Mission:* Training thoughtful committed citizens to work together to effect positive change in the community is what Leadership Asheville is all about. It is part of a nation-wide movement of community leadership development programs. Since the program began in 1982, Leadership Asheville has helped over 740 women and men enlarge their view of Buncombe County and define their personal leadership roles in its future. Participants have learned the hard facts about the county's past, present, and possible future, met the key decision makers, deepened their sense of community trusteeship, and improved their leadership skills. Leadership Asheville Seniors is an affiliated program for older people.

### **The N.C. Rural Center**

*Location:* Raleigh

*Website:* <http://www.ncruralcenter.org/leadership/>

*Mission:* “provides participants with the knowledge, skills and insights they need to bring about positive change in today's challenging economic environment.”

*Brief Description of Program:* “The institute consists of nine days of classes over a three-month period. Each three-day session includes lectures, discussions, learn-by-doing exercises, meals and socials. Sessions run from Wednesday afternoon through Friday afternoon. During the days between sessions, participants complete homework assignments and test out their new skills in their home communities.”

*Cost:* \$495

*Additional Leadership Programs (future):* Sustainable Communities Initiative: Rural Leadership Development Fund – “The objective of the Leadership Opportunities Fund will be to provide needs-based scholarships to present and future rural leaders who wish to participate in leadership development programs. Emphasis

will be placed on programs that provide training in community collaboration and comprehensive economic development. As a first step, the Rural Center will conduct an assessment to identify community leadership needs and eligible leadership programs.”

### **Center for Creative Leadership**

*Location:* Greensboro

*Website:* <http://www.ccl.org>

*Mission:* “Our mission is to advance the understanding, practice and development of leadership for the benefit of society worldwide. Our role is to help address the leadership component of both business and organizational challenges.”

*Brief Description of Program:* CCL has a variety of programs that vary in duration (open-enrollment, custom programs, coaching, etc).

The Center for Creative Leadership receives very high marks from its participants and is considered a national star among leadership programs. The costs vary for different programs, including those customized to the client.

### **Leadership North Carolina**

*Location:* Raleigh

*Website:* <http://www.leadershipnc.org/>

*Mission:* “The mission of the Leadership North Carolina Program is to develop and engage informed and committed leaders by advancing their leadership qualities and broadening their understanding of and involvement in issues and opportunities facing our state.”

*Brief Description of Program:* The program has six, two-day monthly sessions held between November and June. The sessions are held in six different cities across the State.

*Cost:* \$2,500 (travel and accommodations not included)

### **Wildacres Leadership**

*Location:* Durham

*Website:* <http://www.wildacresleadership.org/>

*Mission:* The Wildacres Leadership Initiative seeks to create a community of individuals committed individually and collectively to promoting improved human relations among and expanded opportunities for all North Carolinians.

The Initiative has two goals: to nurture committed individuals to pursue their ideas for a better future for our state's people and communities; and to build a diverse and sustained network across geographic, demographic, professional and ideological lines to address North Carolina's most pressing issues, particularly in the area of human relations.

*Brief Description of Program:* 2-year program (expected to commit 5% of work time)

### **Leadership Charlotte**

*Location:* Charlotte

*Website:* <http://www.leadershipcharlotte.org>

*Mission:* The mission of Leadership Charlotte is to develop and enhance volunteer community leadership by providing a diverse group of emerging and existing leaders with the opportunity to increase their community knowledge, civic network, and service to the community. Leadership Charlotte embraces inclusiveness in our community.

*Brief Description of Program:* Various programs tailored to both adults and youth (high school aged).

### **UNC Institute of Government – Rural Youth Leadership Initiative**

*Location:* Swain & Bertie Counties (pilot program)

*Website:* <http://www.iog.unc.edu/programs/civiced/ruralyouth/overview.htm>

*Mission:* “Develop model programs and training for local governments to more effectively involve youth, including those from diverse backgrounds, in their programs and decisions. . . .The Rural Youth Leadership Initiative is designed to help rural, economically distressed counties build future capacity for community and economic leadership. It promotes leadership, civic involvement and economic awareness among young people in rural communities. It also fosters strong youth-adult partnerships as well.”

### **Other in-state resources:**

- Rural Prosperity Task Force - <http://ruraltaskforce.state.nc.us>
- NC Cooperative Extension Services - <http://www.ces.ncsu.edu/>
- NC Center for Creative Retirement - <http://www.unca.edu/ncccr/>
- UNC – Chapel Hill Carolina Leadership Development - <http://leadership.unc.edu/aboutus/index.html>

### **National programs**

- Center for Public Leadership, Harvard University (a variety of audience-targeted programs)  
<http://www.ksg.harvard.edu/leadership/courseguide.html>
- The Heartland Center for Leadership Development (Nebraska based nonprofit focused on rural communities) -  
<http://www.heartlandcenter.info/index.html>
- North American Rural Futures Institute: Process Leadership Development Center - <http://narfi.org/process-leadership-development-center.html>
- Rural Development Initiatives - <http://www.rdiinc.org/about.html>

## **Appendix C: List of Industries within National Clusters**

Composite clusters were created for this analysis from the U.S. Benchmark and High-Tech Clusters as listed below. The SICs included in each benchmark cluster follow.

### **1. Pharmaceuticals and Medical Technologies**

Pharmaceuticals (Benchmark)

Pharmaceuticals and Medical Technologies (High Tech)

### **2. Hospitals, Labs, and Specialized Medical Services**

Hospitals, Labs, and Specialized Medical Services (Benchmark)

### **3. Information Technology and Instruments**

Information Technology and Instruments (Benchmark)

Information Technology and Instruments (High Tech)

### **4. Communication Services and Software**

Communication Services and Software (High Tech)

### **5. Chemicals and Plastics**

Chemicals and Plastics (Benchmark)

Chemicals and Plastics (High Tech)

### **6. Metalworking and Industrial Machinery**

Metalworking (Benchmark)

Primary Nonferrous Metals (Benchmark)

Aluminum (Benchmark)

Industrial Machinery (High Tech)

### **7. Vehicle Parts Assembly**

Motor Vehicles (Benchmark)

Motor Vehicles (High Tech)

Aerospace (Benchmark)

Aerospace (High Tech)

Boatbuilding (Benchmark)

### **8. Fabricated Textiles**

Fabricated Textiles (Benchmark)

**9. Food Products**

Packaged Food Products (Benchmark)  
Canned and Bottled Beverages (Benchmark)  
Food Oil Mills (Benchmark)

**10. Transportation, Shipping, and Logistics**

Transportation, Shipping and Logistics (Benchmark)

**11. Apparel and Leather Goods**

Apparel (Benchmark)  
Leather Goods (Benchmark)

**12. Wood Products and Furniture**

Wood Products and Furniture (Benchmark)

**13. Tobacco**

Tobacco (Benchmark)

**14. Business Support Services**

Securities and Insurance (Benchmark)  
Banking and Advertising (Benchmark)  
Legal Services (Benchmark)

**In addition, a Recreation and Tourism cluster was created by combining attractions, lodging and restaurant establishments.**

**The benchmark clusters excluded from this analysis were:**

Construction Materials  
Printing and Publishing  
Stone, Clay, and Glass Products  
Petroleum Products  
Jewelry  
Platemaking and Typesetting  
Household Appliances

## **Component Industries, U.S. Benchmark Clusters**

*(Note: Clusters are not mutually exclusive.)*

### **Pharmaceuticals**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2833	Medicinals and botanicals
2834	Pharmaceutical preparations
2835	Diagnostic substances
2836	Biological products exc. diagnostic

### **Hospitals, Labs, Specialized Medical Services**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2731	Book publishing
7371	Computer programming services
7372	Prepackaged software
7373	Computer integrated systems design
7374	Data processing and preparation
7375	Information retrieval services
7376	Computer facilities management
7377	Computer rental & leasing
7378	Computer maintenance & repair
7379	Computer related services, nec
8042	Offices and clinics of optometrists
8043	Offices and clinics of podiatrists
8049	Offices of health practitioners, nec
8062	General medical and surgical hospitals
8063	Psychiatric hospitals
8069	Specialty hospitals, except psychiatric
8071	Medical laboratories
8072	Dental laboratories
8092	Kidney dialysis centers
8093	Specialty outpatient facilities, nec
8099	Health and allied services, nec
8731	Commercial physical research
8732	Commercial nonphysical research
8734	Testing laboratories

### **Information Technology and Instruments**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3471	Plating and polishing
3571	Electronic computers
3572	Computer storage devices
3575	Computer terminals
3577	Computer peripheral equipment, nec
3578	Calculating and accounting equipment
3579	Office machines, nec
3596	Scales and balances, exc. laboratory
3625	Relays and industrial controls
3629	Electrical industrial apparatus, nec
3651	Household audio and video equipment
3661	Telephone and telegraph apparatus

3663 Radio & TV communications equipment  
 3669 Communications equipment, nec  
 3672 Printed circuit boards  
 3674 Semiconductors and related devices  
 3675 Electronic capacitors  
 3676 Electronic resistors  
 3677 Electronic coils and transformers  
 3678 Electronic connectors  
 3679 Electronic components, nec  
 3694 Engine electrical equipment  
 3699 Electrical equipment & supplies, nec  
 3728 Aircraft parts and equipment, nec  
 3761 Guided missiles and space vehicles  
 3769 Space vehicle equipment, nec  
 3812 Search and navigation equipment  
 3821 Laboratory apparatus and furniture  
 3822 Environmental controls  
 3823 Process control instruments  
 3824 Fluid meters and counting devices  
 3825 Instruments to measure electricity  
 3826 Analytical instruments  
 3827 Optical instruments and lenses  
 3829 Measuring & controlling devices, nec  
 3841 Surgical and medical instruments  
 3844 X-ray apparatus and tubes  
 3845 Electromedical equipment  
 3861 Photographic equipment and supplies  
 3873 Watches, clocks, watchcases and parts  
 3931 Musical instruments  
 7371 Computer programming services  
 7372 Prepackaged software  
 7373 Computer integrated systems design  
 7374 Data processing and preparation  
 7375 Information retrieval services  
 7376 Computer facilities management  
 7377 Computer rental & leasing  
 7378 Computer maintenance & repair  
 7379 Computer related services, nec

### **Chemicals and Plastics**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2087	Flavoring extracts and syrups, nec
2611	Pulp mills
2621	Paper mills
2631	Paperboard mills
2812	Alkalies and chlorine
2813	Industrial gases
2816	Inorganic pigments
2821	Plastics materials and resins
2822	Synthetic rubber
2823	Cellulosic manmade fibers
2824	Organic fibers, noncellulosic

2841	Soap and other detergents
2842	Polishes and sanitation goods
2843	Surface active agents
2851	Paints, varnishes, lacquers, enamels, etc.
2865	Cyclic crudes and intermediates
2869	Industrial organic chemicals, nec
2875	Fertilizers, mixing only
2879	Agricultural chemicals, nec
2891	Adhesives and sealants
2893	Printing ink
2899	Chemical preparations, nec
3011	Tires and inner tubes
3061	Mechanical rubber goods
3069	Fabricated rubber products, nec
3081	Unsupported plastics film & sheet
3082	Unsupported plastics profile shapes
3083	Laminated plastics plate & sheet
3084	Plastics pipe
3085	Plastics bottles
3086	Medical laboratories
3087	Custom compound purchased resins
3088	Plastics plumbing fixtures
3089	Plastics products, nec
3111	Leather tanning and finishing
3291	Abrasive products
3399	Primary metal products, nec
3559	Special industry machinery, nec
3692	Primary batteries, dry and wet
3996	Hard surface floor coverings, nec
8042	Offices and clinics of optometrists
8043	Offices and clinics of podiatrists
8049	Offices of health practitioners, nec
8071	Medical laboratories
8072	Dental laboratories
8092	Kidney dialysis centers
8093	Specialty outpatient facilities, nec
8099	Health and allied services, nec

### **Metalworking and Industrial Machinery**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2514	Metal household furniture
2522	Office furniture, except wood
2542	Partitions and fixtures, except wood
2591	Drapery hardware & blinds & shades
2599	Furniture and fixtures, nec
3053	Gaskets, packing and sealing devices
3255	Clay refractories
3272	Concrete products, nec
3274	Lime
3312	Blast furnaces and steel mills
3313	Electrometallurgical products
3315	Steel wire and related products

3316 Cold finishing of steel shapes  
3317 Steel pipe and tubes  
3321 Gray and ductile iron foundries  
3322 Malleable iron foundries  
3324 Steel investment foundries  
3325 Steel foundries, nec  
3398 Metal heat treating  
3411 Metal cans  
3412 Metal barrels, drums, and pails  
3421 Cutlery  
3423 Hand and edge tools, nec  
3425 Saw blades and handsaws  
3429 Hardware, nec  
3431 Metal sanitary ware  
3433 Heating equipment, except electric  
3441 Fabricated structural metal  
3442 Metal doors, sash, and trim  
3443 Fabricated plate work (boiler shops)  
3444 Sheet metalwork  
3446 Architectural metal work  
3448 Prefabricated metal buildings  
3449 Miscellaneous metal work  
3451 Screw machine products  
3452 Bolts, nuts, rivets, and washers  
3462 Iron and steel forgings  
3465 Automotive stampings  
3466 Crowns and closures  
3469 Metal stampings, nec  
3471 Plating and polishing  
3479 Metal coating and allied services  
3483 Ammunition, exc. for small arms, nec  
3484 Small arms  
3489 Ordnance and accessories, nec  
3491 Industrial valves  
3492 Fluid power valves & hose fittings  
3493 Steel springs, except wire  
3494 Valves and pipe fittings, nec  
3495 Wire springs  
3496 Misc. fabricated wire products  
3498 Fabricated pipe and fittings  
3499 Fabricated metal products, nec  
3511 Turbines and turbine generator sets  
3519 Internal combustion engines, nec  
3523 Farm machinery and equipment  
3524 Lawn and garden equipment  
3531 Construction machinery  
3532 Mining machinery  
3533 Oil and gas field machinery  
3534 Elevators and moving stairways  
3535 Conveyors and conveying equipment  
3536 Hoists, cranes, and monorails  
3537 Industrial trucks and tractors

3541 Machine tools, metal cutting types  
3542 Machine tools, metal forming types  
3543 Industrial patterns  
3544 Special dies, tools, jigs & fixtures  
3545 Machine tool accessories  
3546 Power-driven handtools  
3547 Rolling mill machinery  
3548 Welding apparatus  
3549 Metalworking machinery, nec  
3552 Textile machinery  
3553 Woodworking machinery  
3554 Paper industries machinery  
3555 Printing trades machinery  
3556 Food products machinery  
3559 Special industry machinery, nec  
3561 Pumps and pumping equipment  
3562 Ball and roller bearings  
3563 Air and gas compressors  
3564 Blowers and fans  
3565 Packaging machinery  
3566 Speed changers, drives, and gears  
3567 Industrial furnaces and ovens  
3568 Power transmission equipment, nec  
3569 General industrial machinery, nec  
3581 Automatic vending machines  
3582 Commercial laundry equipment  
3585 Refrigeration and heating equipment  
3586 Measuring and dispensing pumps  
3589 Service industry machinery, nec  
3592 Carburetors, pistons, rings, valves  
3593 Fluid power cylinders & actuators  
3594 Fluid power pumps and motors  
3599 Industrial machinery, nec  
3612 Transformers, except electronic  
3613 Switchgear and switchboard apparatus  
3621 Motors and generators  
3624 Carbon and graphite products  
3631 Household cooking equipment  
3632 Household refrigerators and freezers  
3633 Household laundry equipment  
3634 Electric housewares and fans  
3639 Household appliances, nec  
3643 Current-carrying wiring devices  
3644 Noncurrent-carrying wiring devices  
3692 Primary batteries, dry and wet  
3713 Truck and bus bodies  
3714 Motor vehicle parts and accessories  
3715 Truck trailers  
3731 Ship building and repairing  
3732 Boat building and repairing  
3743 Railroad equipment  
3751 Motorcycles, bicycles, and parts

3795 Tanks and tank components  
 3821 Laboratory apparatus and furniture  
 3949 Sporting and athletic goods, nec  
 3995 Burial caskets

**Primary Nonferrous Metals**

<b>SIC</b>	<b>Description</b>
3321	Gray and ductile iron foundries
3322	Malleable iron foundries
3324	Steel investment foundries
3325	Steel foundries, nec
3331	Primary copper
3339	Primary nonferrous metals, nec
3351	Copper rolling and drawing
3356	Nonferrous rolling and drawing, nec
3363	Aluminum die-castings
3364	Nonferrous die-casting exc. aluminum
3365	Aluminum foundries
3366	Copper foundries
3369	Nonferrous foundries, nec
3399	Primary metal products, nec
3599	Industrial machinery, nec

**Aluminum**

<b>SIC</b>	<b>Description</b>
2819	Industrial inorganic chemicals, nec
3334	Primary aluminum
3353	Aluminum sheet, plate, and foil
3354	Aluminum extruded products
3355	Aluminum rolling and drawing, nec
3411	Metal cans
3463	Nonferrous forgings
3497	Metal foil and leaf

**Motor Vehicle Manufacturing**

<b>SIC</b>	<b>Description</b>
2273	Carpets and rugs
2299	Textile goods, nec
2396	Automotive and apparel trimmings
2399	Fabricated textile products, nec
2531	Public building and related furniture
2599	Furniture and fixtures, nec
2851	Paints, varnishes, lacquers, enamels, etc.
2891	Adhesives and sealants
3011	Tires and inner tubes
3052	Rubber & plastics hose & belting
3061	Mechanical rubber goods
3069	Fabricated rubber products, nec
3081	Unsupported plastics film & sheet
3082	Unsupported plastics profile shapes
3083	Laminated plastics plate & sheet
3084	Plastics pipe

3085	Plastics bottles
3086	Plastics foam products
3087	Custom compound purchased resins
3088	Plastics plumbing fixtures
3089	Plastics products, nec
3142	House slippers
3211	Flat glass
3229	Pressed and blown glass, nec
3231	Glass products, made of purchased glass
3465	Automotive stampings
3493	Steel springs, except wire
3519	Internal combustion engines, nec
3524	Lawn and garden equipment
3585	Refrigeration and heating equipment
3592	Carburetors, pistons, rings, valves
3641	Electric lamps
3651	Household audio and video equipment
3694	Engine electrical equipment
3711	Motor vehicles and car bodies
3713	Truck and bus bodies
3714	Motor vehicle parts and accessories
3715	Truck trailers
3716	Motor homes

#### **Aerospace**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3463	Nonferrous forgings
3482	Small arms ammunition
3483	Ammunition, exc. for small arms, nec
3721	Aircraft
3724	Aircraft engines and engine parts
3728	Aircraft parts and equipment, nec
3761	Guided missiles and space vehicles
3764	Space propulsion units and parts
3769	Space vehicle equipment, nec
3812	Search and navigation equipment

#### **Boat Building**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3732	Boat building and repairing
3543	Industrial patterns
3541	Machine tools, metal cutting types
3519	Internal combustion engines, nec
3511	Turbines and turbine generator sets
2892	Explosives

#### **Fabricated Textiles**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2211	Broadwoven fabric mills, cotton
2221	Broadwoven fabric mills, manmade
2231	Broadwoven fabric mills, wool
2261	Finishing plants, cotton

2262 Finishing plants, manmade  
 2295 Coated fabrics, not rubberized  
 2311 Men's and boys' suits, coats and overcoats  
 2321 Men's and boys' shirts  
 2322 Men's & boys' underwear + nightwear  
 2323 Men's and boys' neckwear  
 2325 Men's and boys' trousers and slacks  
 2326 Men's and boys' work clothing  
 2329 Men's and boys' clothing, nec  
 2331 Women's & misses' blouses & shirts  
 2335 Women's, junior's, & misses' dresses  
 2337 Women's and misses' suits and coats  
 2339 Women's and misses' outerwear, nec  
 2341 Women's and children's underwear  
 2342 Bras, girdles, and allied garments  
 2353 Hats, caps, and millinery  
 2361 Girls' & children's dresses, blouses  
 2369 Girls' and children's outerwear, nec  
 2371 Fur goods  
 2381 Fabric dress and work gloves  
 2384 Robes and dressing gowns  
 2385 Waterproof outerwear  
 2386 Leather and sheep-lined clothing  
 2387 Apparel belts  
 2389 Apparel and accessories, nec  
 2391 Curtains and draperies  
 2392 Housefurnishings, nec  
 2393 Textile bags  
 2394 Canvas and related products  
 2396 Automotive and apparel trimmings  
 2399 Fabricated textile products, nec  
 2512 Upholstered household furniture  
 2515 Mattresses and bedsprings  
 2823 Cellulosic manmade fibers  
 3021 Rubber and plastics footwear  
 3052 Rubber & plastics hose & belting  
 3161 Luggage  
 3172 Personal leather goods, nec  
 3842 Surgical appliances and supplies  
 3942 Dolls and stuffed toys  
 3965 Fasteners, buttons, needles, & pins  
 3995 Burial caskets

### **Packaged Food Products**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2011	Meat packing plants
2013	Sausages and other prepared meats
2015	Poultry slaughtering and processing
2021	Creamery butter
2022	Cheese, natural and processed
2023	Dry, condensed, evaporated products
2024	Ice cream and frozen desserts

2026	Fluid milk
2032	Canned specialties
2033	Canned fruits and vegetables
2034	Dehydrated fruits, vegetables, soups
2035	Pickles, sauces, and salad dressings
2037	Frozen fruits and vegetables
2038	Frozen specialties, nec
2043	Cereal breakfast foods
2044	Rice milling
2045	Prepared flour mixes and doughs
2051	Bread, cake, and related products
2052	Cookies and crackers
2053	Frozen bakery products, except bread
2061	Raw cane sugar
2062	Cane sugar refining
2063	Beet sugar
2064	Candy & other confectionaries
2066	Chocolate and cocoa products
2067	Chewing gum
2068	Salted and roasted nuts and seeds
2079	Edible fats and oils, nec
2082	Malt beverages
2084	Wines, brandy, and brandy spirits
2085	Distilled and blended liquors
2086	Bottled and canned soft drinks
2091	Canned and cured fish and seafoods
2092	Fresh or frozen prepared fish
2095	Roasted coffee
2096	Potato chips and similar snacks
2098	Macaroni and spaghetti
2099	Food preparations, nec
2676	Sanitary paper products
2861	Gum and wood chemicals
3262	Vitreous china table & kitchenware
3263	Semivitreous table & kitchenware
3556	Food products machinery
3565	Packaging machinery
3914	Silverware and plated ware

### **Canned and Bottled Beverages**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2046	Wet corn milling
2047	Dog and cat food
2048	Prepared feeds, nec
2083	Malt
2087	Flavoring extracts and syrups, nec
2873	Nitrogenous fertilizers
2874	Phosphatic fertilizers
2875	Fertilizers, mixing only
2879	Agricultural chemicals, nec
3221	Glass containers
3411	Metal cans

**Food Oil Mills**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2074	Cottonseed oil mills
2075	Soybean oil mills
2076	Vegetable oil mills, nec
2077	Animal and marine fats and oils
2079	Edible fats and oils, nec

**Transportation, Shipping, & Logistics**

<b><u>SIC</u></b>	<b><u>Description</u></b>
4212	Local Trucking without Storage
4213	Trucking, except local
4214	Local Trucking with Storage
4215	Courier Services, except Air
4221	Farm product warehousing and storage
4222	Refrigerated warehousing and storage
4225	General warehousing and storage
4226	Special warehousing and storage, nec
4231	Trucking terminal facilities
4311	U.S. Postal Service
4412	Deep sea foreign transportation of freight
4424	Deep sea domestic transportation of freight
4432	Freight trans. on Great Lakes-St. Lawrence
4449	Water transport of freight, nec
4481	Deep sea passenger trans., ex. ferry
4482	Ferries
4489	Water passenger transportation, nec
4491	Marine cargo handling
4492	Towing and tugboat service
4493	Marinas
4499	Water transportation services, nec
4512	Air transportation, scheduled
4513	Air courier services
4522	Air transportation, nonscheduled
4612	Crude petroleum pipelines
4613	Refined petroleum pipelines
4619	Pipelines, nec
4731	Freight transportation arrangement
4741	Rental of railroad cars
4783	Packing and crating
4785	Vehicle inspection and weighing services
4789	Transportation services, nec

**Apparel**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2211	Broadwoven fabric mills, cotton
2221	Broadwoven fabric mills, manmade
2231	Broadwoven fabric mills, wool
2241	Narrow fabric and other smallwares mills
2251	Women's hosiery, except socks
2252	Hosiery, nec

2253	Knit outerwear mills
2254	Knit underwear mills
2257	Weft knit fabric mills
2258	Lace & warp knit fabric mills
2259	Knitting mills, nec
2261	Finishing plants, cotton
2262	Finishing plants, manmade
2269	Finishing plants, nec
2273	Carpets and rugs
2281	Yarn spinning mills
2282	Throwing and winding mills
2284	Thread mills
2296	Tire cord and fabrics
2297	Nonwoven fabrics
2298	Cordage and twine
2299	Textile goods, nec
2311	Men's and boys' suits, coats and overcoats
2321	Men's and boys' shirts
2322	Men's & boys' underwear + nightwear
2323	Men's and boys' neckwear
2325	Men's and boys' trousers and slacks
2326	Men's and boys' work clothing
2329	Men's and boys' clothing, nec
2331	Women's & misses' blouses & shirts
2335	Women's, junior's, & misses' dresses
2337	Women's and misses' suits and coats
2339	Women's and misses' outerwear, nec
2341	Women's and children's underwear
2342	Bras, girdles, and allied garments
2353	Hats, caps, and millinery
2361	Girls' & children's dresses, blouses
2369	Girls' and children's outerwear, nec
2371	Fur goods
2381	Fabric dress and work gloves
2384	Robes and dressing gowns
2385	Waterproof outerwear
2386	Leather and sheep-lined clothing
2387	Apparel belts
2389	Apparel and accessories, nec
2395	Pleating and stitching
2397	Schiffli machine embroideries
2824	Organic fibers, noncellulosic
3965	Fasteners, buttons, needles, & pins

### **Leather Goods**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3111	Leather tanning and finishing
3131	Boot and shoe cut stock and findings
3142	House slippers
3143	Men's footwear, except athletic
3144	Women's footwear, except athletic
3149	Footwear, except rubber, nec

3151 Leather gloves and mittens  
 3171 Women's handbags and purses  
 3172 Personal leather goods, nec  
 3199 Leather goods, not elsewhere classified

**Wood Products and Furniture**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2411	Logging
2426	Hardwood dimension & flooring mills
2431	Millwork
2434	Wood kitchen cabinets
2439	Structural wood members, nec
2441	Nailed wood boxes and shook
2448	Wood pallets and skids
2449	Wood containers, nec
2451	Mobile homes
2452	Prefabricated wood buildings
2493	Reconstituted wood products
2499	Wood products, nec
2511	Wood household furniture
2517	Wood TV and radio cabinets
2521	Wood office furniture
2611	Pulp mills
2621	Paper mills
2631	Paperboard mills
2861	Gum and wood chemicals
3792	Travel trailers and campers
3931	Musical instruments

**Tobacco Products**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2111	Cigarettes
2121	Cigars
2131	Chewing and smoking tobacco
2141	Tobacco stemming and redrying

**Securities and Insurance**

<b><u>SIC</u></b>	<b><u>Description</u></b>
6231	Security and commodity exchanges
6282	Investment advice
6289	Security and commodity exchange nec
6311	life insurance
6321	Accident and health insurance
6324	Hospital and medical service plans
6351	Surety insurance
6361	Title insurance
6371	Pension, health, and welfare funds
6399	Insurance carriers, nec
6531	Real estate agents and managers

## **Banking and Advertising**

<b><u>SIC</u></b>	<b><u>Description</u></b>
6011	Federal reserve banks
6019	Central reserve depository institutions, nec
6021	National commercial banks
6022	State commercial banks
6029	Comerica banks, nec
6035	Savings institutions, Federally chartered
6036	Savings institutions, not Federally chartered
6061	Credit unions, Federally chartered
6062	Credit unions, not Federally chartered
6081	Branched and agencies of foreign banks
6082	Foreign trade & intl. banking institutions
6091	Nondeposit trust facilities
6099	Functions related to depository banking, nec
6111	Federal and Fed.-sponsored credit
6141	Personal credit institutions
6153	Short-term bus. credit institutions, exc. ag
6159	Misc. business credit institutions
6162	Mortgage bankers and loan correspondents
6163	Loan Brokers
6211	Security brokers, dealers, & flotation co
6221	Commodity contracts brokers and dealers
7311	Advertising agencies
7312	Outdoor advertising services
7313	Radio, TV, publisher representatives
7319	Advertising, nec

## **Legal Services**

<b><u>SIC</u></b>	<b><u>Description</u></b>
8111	Legal services

## ***[Excluded Clusters:]***

## **Construction Materials**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2273	Carpets and rugs
2394	Canvas and related products
2421	Sawmills and planing mills, general
2426	Hardwood dimension & flooring mills
2429	Special product sawmills, nec
2431	Millwork
2434	Wood kitchen cabinets
2435	Hardwood veneer and plywood
2436	Softwood veneer and plywood
2439	Structural wood members, nec
2452	Prefabricated wood buildings
2491	Wood preserving
2493	Reconstituted wood products
2499	Wood products, nec
2541	Wood partitions and fixtures

2679 Converted paper products, nec  
 2851 Paints, varnishes, lacquers, enamels, etc.  
 2951 Asphalt paving mixtures and blocks  
 2952 Asphalt felts and coatings  
 3251 Brick and structural clay tile  
 3253 Ceramic wall and floor tile  
 3259 Structural clay products, nec  
 3261 Vitreous plumbing fixtures  
 3264 Porcelain electrical supplies  
 3271 Concrete block and brick  
 3273 Ready-mixed concrete  
 3275 Gypsum products  
 3281 Cut stone and stone products  
 3291 Abrasive products  
 3296 Mineral wool  
 3315 Steel wire and related products  
 3357 Nonferrous wiredrawing & insulating  
 3425 Saw blades and handsaws  
 3431 Metal sanitary ware  
 3432 Plumbing fixture fittings and trim  
 3433 Heating equipment, except electric  
 3442 Metal doors, sash, and trim  
 3444 Sheet metalwork  
 3449 Miscellaneous metal work  
 3491 Industrial valves  
 3492 Fluid power valves & hose fittings  
 3494 Valves and pipe fittings, nec  
 3495 Wire springs  
 3496 Misc. fabricated wire products  
 3498 Fabricated pipe and fittings  
 3561 Pumps and pumping equipment  
 3563 Air and gas compressors  
 3585 Refrigeration and heating equipment  
 3586 Measuring and dispensing pumps  
 3613 Switchgear and switchboard apparatus  
 3634 Electric housewares and fans  
 3639 Household appliances, nec  
 3643 Current-carrying wiring devices  
 3644 Noncurrent-carrying wiring devices  
 3645 Residential lighting fixtures  
 3646 Commercial lighting fixtures  
 3647 Vehicular lighting equipment  
 3648 Lighting equipment, nec  
 3663 Radio & TV communications equipment  
 3669 Communications equipment, nec  
 3699 Electrical equipment & supplies, nec  
 3799 Transportation equipment, nec  
 3822 Environmental controls  
 3851 Ophthalmic goods  
 3991 Brooms and brushes  
 3996 Hard surface floor coverings, nec  
 8711 Engineering services

- 8712 Architectural services
- 8713 Surveying services

**Printing and Publishing**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2611	Pulp mills
2652	Setup paperboard boxes
2653	Corrugated and solid fiber boxes
2655	Fiber cans, drums & similar products
2656	Sanitary food containers
2657	Folding paperboard boxes
2671	Paper coated & laminated, packaging
2672	Paper coated and laminated, nec
2673	Bags: plastics, laminated, & coated
2674	Bags: uncoated paper & multiwall
2675	Die-cut paper and board
2676	Sanitary paper products
2677	Envelopes
2678	Stationery products
2679	Converted paper products, nec
2711	Newspapers: publishing, or pub. & printing
2721	Periodicals: publishing and printing
2731	Book publishing
2732	Book printing
2741	Miscellaneous publishing
2752	Commercial printing, lithographic
2754	Commercial printing, gravure
2759	Commercial printing, nec
2761	Manifold business forms
2771	Greeting cards
2782	Blankbooks and looseleaf binders
2789	Bookbinding and related work
2791	Typesetting
2796	Platemaking services
3275	Gypsum products
3861	Photographic equipment and supplies
3953	Marking devices
3955	Carbon paper and inked ribbons
3993	Signs and advertising specialities
3999	Manufacturing industries, nec
4812	Radiotelephone communications
4813	Telephone communications, exc. radio
4822	Telegraph & other message communications
4899	Communications services, nec
7371	Computer programming services
7372	Prepackaged software
7373	Computer integrated systems design
7374	Data processing and preparation
7375	Information retrieval services
7376	Computer facilities management
7377	Computer rental & leasing
7378	Computer maintenance & repair

7379 Computer related services, nec  
 8062 General medical and surgical hospitals  
 8063 Psychiatric hospitals  
 8069 Specialty hospitals, except psychiatric  
 8731 Commercial physical research  
 8732 Commercial nonphysical research  
 8734 Testing laboratories

**Stone, Clay and Glass Products**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2873	Nitrogenous fertilizers
2874	Phosphatic fertilizers
2911	Petroleum refining
3011	Tires and inner tubes
3241	Cement, hydraulic
3255	Clay refractories
3261	Vitreous plumbing fixtures
3262	Vitreous china table & kitchenware
3263	Semivitreous table & kitchenware
3264	Porcelain electrical supplies
3269	Pottery products, nec
3274	Lime
3295	Minerals, ground or treated
3297	Nonclay refractories
3299	Nonmetallic mineral products, nec
3629	Electrical industrial apparatus, nec

**Petroleum Products**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2895	Carbon black
2911	Petroleum refining
2951	Asphalt paving mixtures and blocks
2952	Asphalt felts and coatings
2992	Lubricating oils and greases
2999	Petroleum and coal products, nec

**Jewelry**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3339	Primary nonferrous metals, nec
3911	Jewelry, precious metal
3915	Jewelers' materials & lapidary work
3961	Costume jewelry

**Platemaking and Typesetting**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2791	Typesetting
2796	Platemaking services
2893	Printing ink
3555	Printing trades machinery

## **Component Industries, U.S. Benchmark Technology- Intensive Clusters**

*(Note: Clustering based on analysis of technology-intensive industries only. Clusters are not mutually exclusive.)*

### **Pharmaceuticals and Medical Technologies**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2833	Medicinals and botanicals
2834	Pharmaceutical preparations
2835	Diagnostic substances
2836	Biological products exc. diagnostic
3634	Electric housewares and fans
3841	Surgical and medical instruments
3842	Surgical appliances and supplies
8731	Commercial physical research
8732	Commercial nonphysical research
8734	Testing laboratories

### **Information Technology and Instruments**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3571	Electronic computers
3572	Computer storage devices
3575	Computer terminals
3577	Computer peripheral equipment, nec
3578	Calculating and accounting equipment
3579	Office machines, nec
3625	Relays and industrial controls
3629	Electrical industrial apparatus, nec
3631	Household cooking equipment
3643	Current-carrying wiring devices
3644	Noncurrent-carrying wiring devices
3661	Telephone and telegraph apparatus
3663	Radio & TV communications equipment
3669	Communications equipment, nec
3672	Printed circuit boards
3674	Semiconductors and related devices
3675	Electronic capacitors
3676	Electronic resistors
3677	Electronic coils and transformers
3678	Electronic connectors
3679	Electronic components, nec
3694	Engine electrical equipment
3699	Electrical equipment & supplies, nec
3812	Search and navigation equipment
3821	Laboratory apparatus and furniture
3822	Environmental controls
3823	Process control instruments
3824	Fluid meters and counting devices
3825	Instruments to measure electricity
3826	Analytical instruments
3827	Optical instruments and lenses

3829 Measuring & controlling devices, nec  
 3844 X-ray apparatus and tubes  
 3845 Electromedical equipment  
 7371 Computer programming services  
 7372 Prepackaged software  
 7373 Computer integrated systems design  
 7374 Data processing and preparation  
 7375 Information retrieval services  
 7379 Computer related services, nec

**Communications Services and Software**

<b><u>SIC</u></b>	<b><u>Description</u></b>
4899	Communications services, nec
7371	Computer programming services
7372	Prepackaged software
7373	Computer integrated systems design
7374	Data processing and preparation
7375	Information retrieval services
7379	Computer related services, nec
8711	Engineering services
8712	Architectural services
8713	Surveying services
8731	Commercial physical research
8732	Commercial nonphysical research
8734	Testing laboratories

**Chemicals and Plastics**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2812	Alkalies and chlorine
2813	Industrial gases
2816	Inorganic pigments
2821	Plastics materials and resins
2822	Synthetic rubber
2823	Cellulosic manmade fibers
2824	Organic fibers, noncellulosic
2841	Soap and other detergents
2842	Polishes and sanitation goods
2843	Surface active agents
2844	Toilet preparations
2851	Paints, varnishes, lacquers, enamels, etc.
2865	Cyclic crudes and intermediates
2869	Industrial organic chemicals, nec
2873	Nitrogenous fertilizers
2874	Phosphatic fertilizers
2875	Fertilizers, mixing only
2879	Agricultural chemicals, nec
2891	Adhesives and sealants
2893	Printing ink
2899	Chemical preparations, nec
3559	Special industry machinery, nec
3624	Carbon and graphite products
3692	Primary batteries, dry and wet

3843 Dental equipment and supplies  
 8071 Medical laboratories  
 8072 Dental laboratories  
 8092 Kidney dialysis centers  
 8093 Specialty outpatient facilities, nec  
 8099 Health and allied services, nec

**Industrial Machinery**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3511	Turbines and turbine generator sets
3532	Mining machinery
3535	Conveyors and conveying equipment
3536	Hoists, cranes, and monorails
3541	Machine tools, metal cutting types
3542	Machine tools, metal forming types
3546	Power-driven handtools
3547	Rolling mill machinery
3549	Metalworking machinery, nec
3553	Woodworking machinery
3555	Printing trades machinery
3556	Food products machinery
3559	Special industry machinery, nec
3561	Pumps and pumping equipment
3563	Air and gas compressors
3564	Blowers and fans
3565	Packaging machinery
3612	Transformers, except electronic
3621	Motors and generators

**Motor Vehicle Manufacturing**

<b><u>SIC</u></b>	<b><u>Description</u></b>
2851	Paints, varnishes, lacquers, enamels, etc.
2893	Printing ink
3519	Internal combustion engines, nec
3531	Construction machinery
3534	Elevators and moving stairways
3537	Industrial trucks and tractors
3548	Welding apparatus
3641	Electric lamps
3645	Residential lighting fixtures
3646	Commercial lighting fixtures
3647	Vehicular lighting equipment
3648	Lighting equipment, nec
3651	Household audio and video equipment
3691	Storage batteries
3694	Engine electrical equipment
3711	Motor vehicles and car bodies
3713	Truck and bus bodies
3714	Motor vehicle parts and accessories
3715	Truck trailers

**Aerospace**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3544	Special dies, tools, jigs & fixtures
3545	Machine tool accessories
3721	Aircraft
3724	Aircraft engines and engine parts
3728	Aircraft parts and equipment, nec
3761	Guided missiles and space vehicles
3764	Space propulsion units and parts
3769	Space vehicle equipment, nec

**Household Appliances**

<b><u>SIC</u></b>	<b><u>Description</u></b>
3632	Household refrigerators and freezers
3633	Household laundry equipment
3635	Household vacuum cleaners
3639	Household appliances, nec
3716	Motor homes

## **Appendix D: Analysis of the AdvantageWest Region's Competitive Advantages within National Clusters**

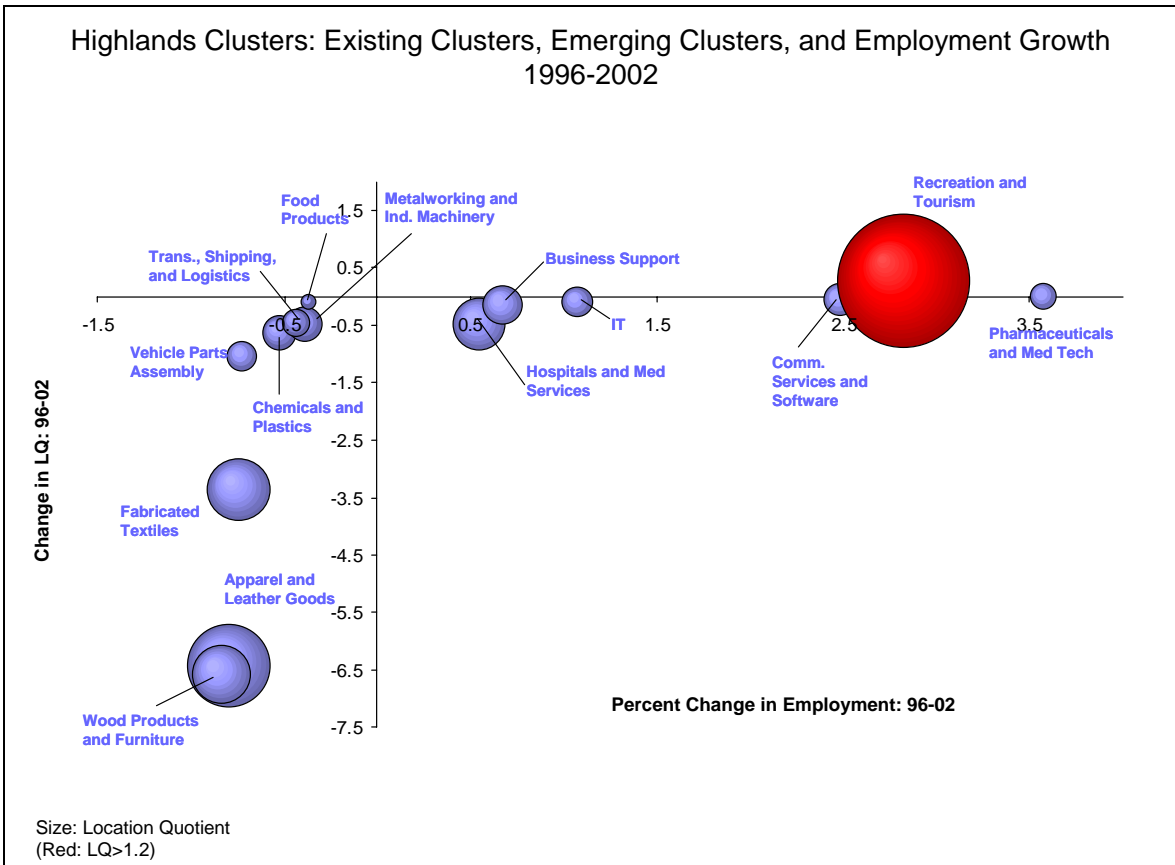
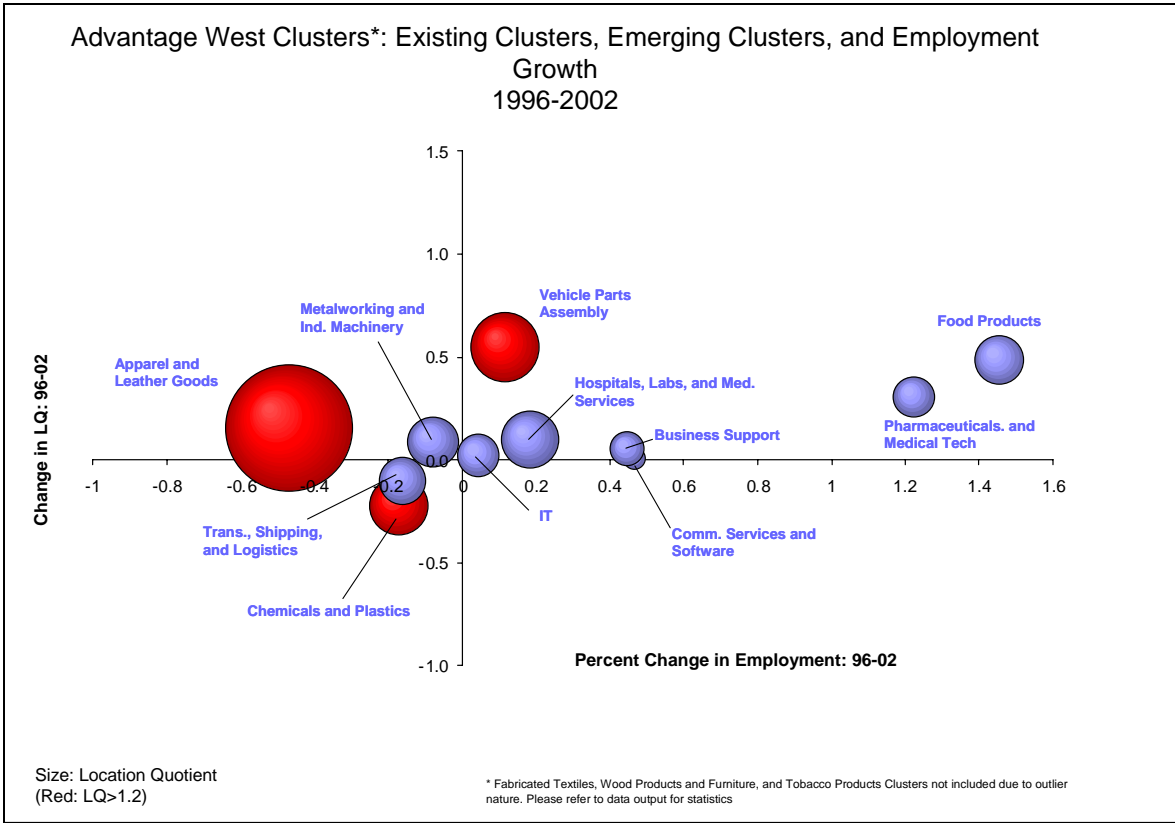
The analyses of growth in employment and concentration reported in Section II of this report were based on a detailed cluster analysis of firm-level data from the N.C. Employment Security Commission for the third quarter in years 1996 and 2002. Those data represent firms that participate in the unemployment insurance (UI) program and therefore may not include many small firms or self-employed persons. Nonetheless, that data source is comparable with national data sources from the Bureau of Labor Statistics and allows regional comparisons with national data.

Table D-1 summarizes which clusters in the AdvantageWest region grew in employment relative to the U.S. at what levels and which grew in their concentration relative to the U.S. (measured by the location quotient). The analysis is broken out by four sub-regions within AdvantageWest.

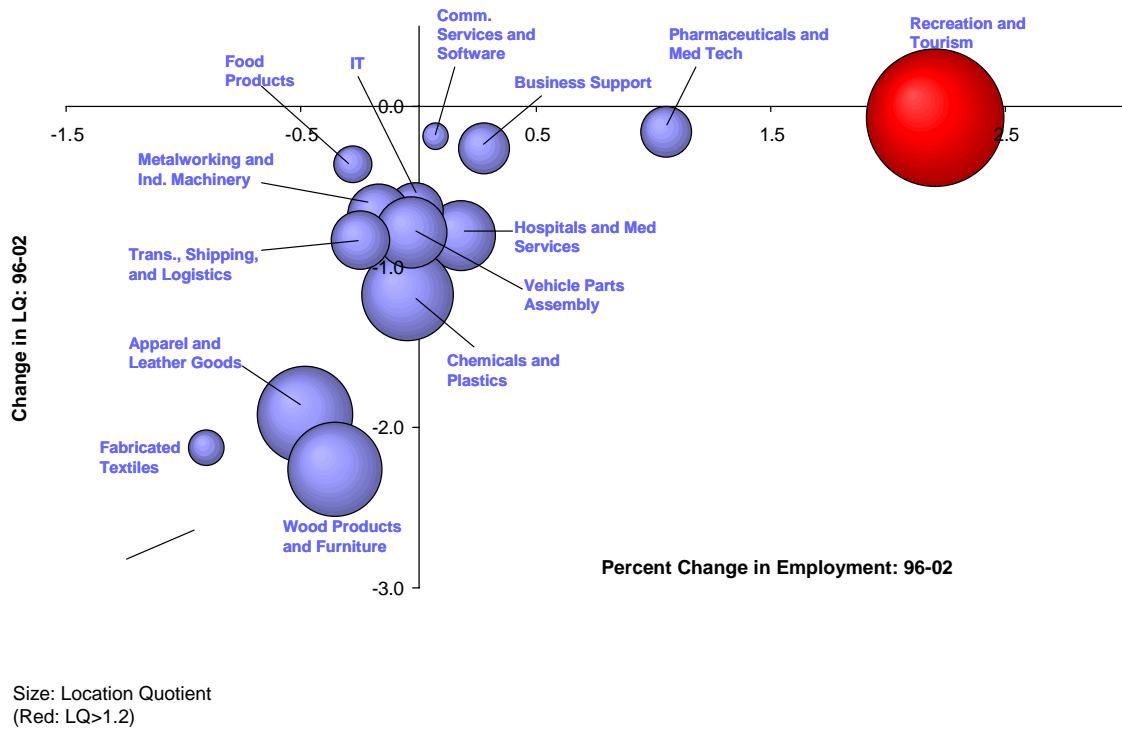
Figures D-1 through D-5 depict graphically the changes in employment and concentration for the region and its four sub-regions.

Table D-2 shows the actual employment and location quotient numbers that drive the figures, also detailed by cluster and sub-region.

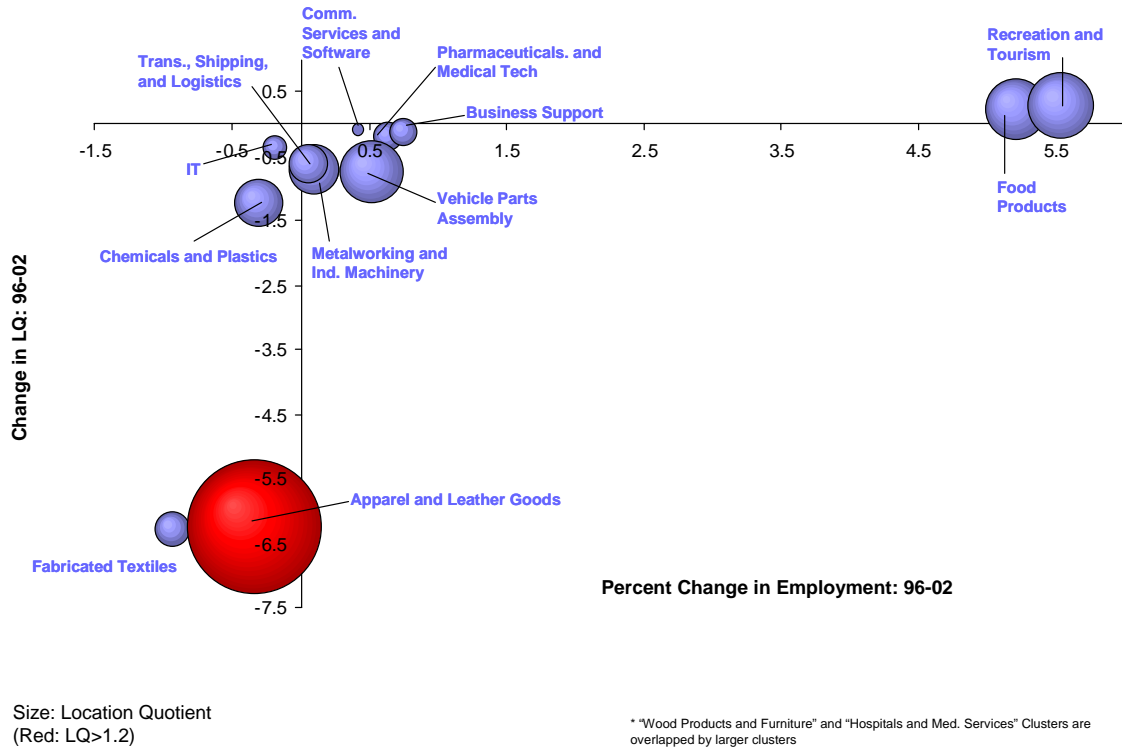
## Figures D-1 – D-5: Competitive Advantages vs. U.S.



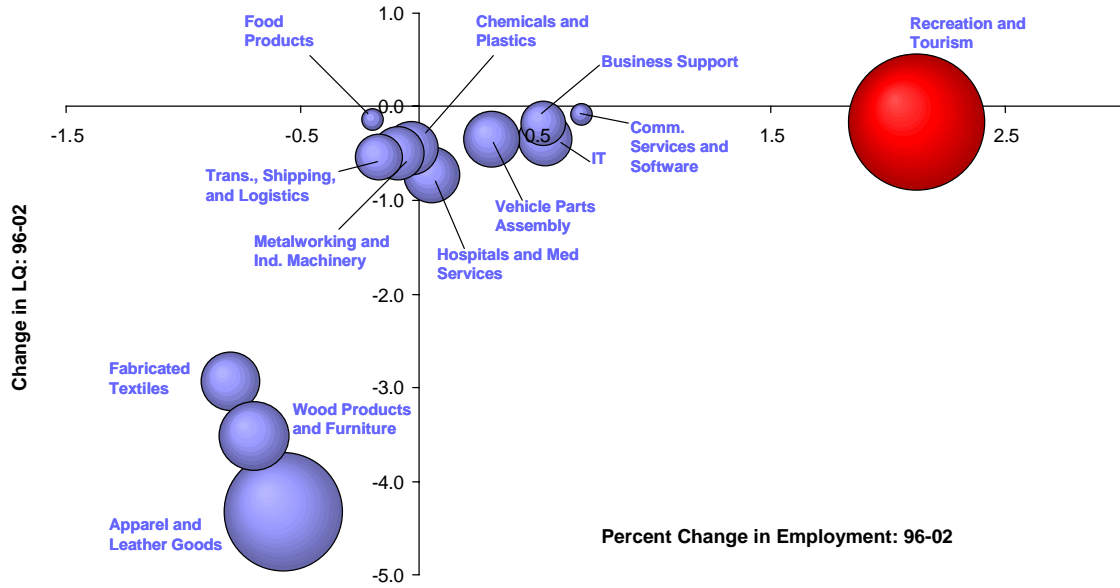
### Metro Clusters: Existing Clusters, Emerging Clusters, and Employment Growth 1996-2002



### Foothills Clusters: Existing Clusters, Emerging Clusters, and Employment Growth 1996-2002



## High Country Clusters: Existing Clusters, Emerging Clusters, and Employment Growth 1996-2002



Size: Location Quotient  
(Red: LQ>1.2)

Pharmaceutical and Med. Tech not included due to outlier nature, refer to data table

**Table D-1: Competitive Advantages for AdvantageWest Region in National Industry Clusters**

*Based on ES202 firm-level data for 1996 and 2002 received under a confidentiality agreement between UNC-Chapel Hill's Office of Economic Development and the N.C. Employment Security Commission.*

*Appendix C shows the component industries in each of these nationally defined clusters.*

	<b>Fast growing (100% or more 96-02)</b>	<b>Growing 50% or more</b>	<b>Stable &amp; positive growth</b>	<b>High concentration relative to US</b>	<b>Increasing share relative to US</b>
<b>Advantage West region overall</b>	Pharm. and Med. Tech; Food Products; Recreation and Tourism		Hospitals, Labs, and Specialized Medical Services; IT and Instruments; Communication Services and Software; Vehicle Parts Assembly; Business Support Services	Chemicals and Plastics; Vehicle Parts Assembly; Apparel and Leather Goods; Recreation and Tourism	Pharm. and Med. Tech; Vehicle Parts Assembly; Food Products; Recreation and Tourism
<b>Highlands</b> Cherokee, Clay, Graham, Jackson, Macon, Swain	Pharm. and Med. Tech; IT and Instruments; Communication Services and Software; Recreation and Tourism	Hospitals, Labs, and Specialized Medical Services; Business Support Services		Fabricated Textiles; Apparel and Leather Goods; Recreation and Tourism	Pharm. and Med. Tech; Hospitals, Labs, and Specialized Medical Services; IT and Instruments; Communication Services and Software; Business Support Services; Recreation and Tourism

	<b>Fast growing (100% or more 96-02)</b>	<b>Growing 50% or more</b>	<b>Stable &amp; positive growth</b>	<b>High concentration relative to US</b>	<b>Increasing share relative to US</b>
<b>Asheville metro</b> Buncombe, Haywood, Henderson, Madison, Transylvania	Pharm. and Med. Tech; Recreation and Tourism		Hospitals, Labs, and Specialized Medical Services; Communication Services and Software; Business Support Services	Hospitals, Labs, and Specialized Medical Services; Chemicals and Plastics; Vehicle Parts Assembly; Apparel and Leather Goods; Recreation and Tourism	Pharm. and Med. Tech; Vehicle Parts Assembly; Recreation and Tourism
<b>Foothills</b> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes	Food products; Recreation and Tourism	Pharm. And Med. Tech; Vehicle Parts Assembly; Business Support Services	Hospitals, Labs, and Specialized Medical Services; Communication Services and Software; Metalworking and Industrial Machinery; Transportation, Shipping, and Logistics	Metalworking and Industrial Machinery; Vehicle Parts Assembly; Food Products; Apparel and Leather Goods; Recreation and Tourism	Metalworking and Industrial Machinery; Vehicle Parts Assembly; Food Products; Apparel and Leather Goods; Recreation and Tourism
<b>High Country</b> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey	Pharm. and Med. Tech; Recreation and Tourism	IT and Instruments; Communication Services and Software; Business Support Services; Recreation and Tourism			

**Table D-2: Employment and Concentration Changes in Clusters, Region vs. U.S., 1996-2002**

Sources: ES-202 firm-level data from the N.C. Employment Security Commission, and equivalent data for U.S. from Bureau of Labor Statistics.  
Data are for 3rd quarter of 2002 and 1996. Third quarter is generally the least subject to seasonal variation.

**Clusters for Advantage  
West region overall**

	Establishments Q3 2002	Employment Q3 2002	Wages Q3 2002	Location quot. relative to U.S.	Change in LQ since 1996	Change in Empl since 1996	Mean Qtrly Wages/Job	Mean Jobs/Est
Pharm. and Med. Tech	154	1,787	\$13,468,674	0.56	0.31	122.0%	\$7,537	12
Hospitals, Labs, and Specialized Medical Services	798	26,343	\$219,985,087	1.11	0.10	18.1%	\$8,351	33
Information Tech. and Instruments	293	8,305	\$73,095,929	0.63	0.03	4.3%	\$8,801	28
Communication Services and Software	407	1,978	\$16,362,037	0.18	0.01	46.6%	\$8,272	5
Chemicals and Plastics	487	11,646	\$104,092,648	1.20	-0.22	-17.1%	\$8,938	24
Metalworking and Industrial Machinery	364	15,663	\$130,586,725	0.93	0.09	-8.2%	\$8,337	43
Vehicle Parts Assembly	220	18,595	\$156,043,557	1.67	0.55	11.6%	\$8,392	85
Fabricated Textiles	43	1,949	\$10,094,213	0.71	-3.11	-89.3%	\$5,179	45
Food Products	80	5,317	\$33,160,361	0.83	0.49	145.4%	\$6,237	66
Transportation, Shipping, and Logistics	598	7,729	\$55,277,697	0.78	-0.10	-16.4%	\$7,152	13
Apparel and Leather Goods	159	14,451	\$98,231,394	5.66	0.15	-47.1%	\$6,798	91
Wood Products and Furniture	189	4,960	\$42,234,623	0.76	-5.57	-77.0%	\$8,515	26
Business Support Services	1,981	10,133	\$84,700,398	0.41	0.06	44.8%	\$8,359	5
Recreation and Tourism	3,405,600	48,182	\$169,255,758	4.79	3.62	263.4%	\$3,513	24

**Clusters for Highlands  
counties**

Cherokee, Clay, Graham,  
Jackson, Macon, Swain

Establishments    Employment    Wages    Location quot.    Change in LQ    Change in Empl    Mean Qtrly    Mean  
Q3 2002    Q3 2002    Q3 2002    relative to U.S.    since 1996    since 1996    Wages/Job    Jobs/Est

Pharm. and Med. Tech	20	96	\$492,206	0.27	0.21	357.1%	\$5,127	5
Hospitals, Labs, and Specialized Medical Services	75	3,092	\$22,634,160	1.15	0.38	54.4%	\$7,320	41
Information Tech. and Instruments	22	578	\$3,757,853	0.39	0.21	107.2%	\$6,501	26
Communication Services and Software	42	553	\$3,825,504	0.44	0.27	247.8%	\$6,918	13
Chemicals and Plastics	33	410	\$3,490,935	0.37	-0.37	-52.8%	\$8,514	12
Metalworking and Industrial Machinery	22	796	\$5,998,164	0.42	-0.13	-38.9%	\$7,535	36
Vehicle Parts Assembly	11	521	\$2,999,637	0.41	-0.68	-72.8%	\$5,757	47
Fabricated Textiles	6	532	\$2,218,490	1.71	-2.02	-74.7%	\$4,170	89
Food Products	4	54	\$367,884	0.07	-0.04	-37.2%	\$6,813	14
Transportation, Shipping, and Logistics	54	374	\$2,298,963	0.33	-0.20	-43.7%	\$6,147	7
Apparel and Leather Goods	7	833	\$3,756,070	2.88	-4.18	-79.9%	\$4,509	119
Wood Products and Furniture	29	442	\$2,741,962	0.60	-6.26	-84.0%	\$6,204	15
Business Support Services	264	1,185	\$8,878,341	0.42	0.12	67.1%	\$7,492	4
Recreation and Tourism	457	8,936	\$36,111,887	7.85	6.10	282.4%	\$4,041	34

**Clusters for Asheville Metro counties**

Buncombe, Haywood,  
Henderson, Madison,  
Transylvania

Establishments    Employment    Wages    Location quot.    Change in LQ    Change in Empl    Mean Qtrly    Mean  
Q3 2002    Q3 2002    Q3 2002    relative to U.S.    since 1996    since 1996    Wages/Job    Jobs/Est

Pharm. and Med. Tech	79	968	\$8,267,670	0.72	0.38	105.1%	\$8,541	12
Hospitals, Labs, and Specialized Medical Services	417	12,930	\$119,248,709	1.28	0.14	17.8%	\$9,223	31
Information Tech. and Instruments	174	4,816	\$48,015,858	0.87	0.01	-2.1%	\$9,970	28
Communication Services and Software	222	882	\$8,534,956	0.19	-0.05	6.7%	\$9,677	4
Chemicals and Plastics	246	7,099	\$68,239,015	1.73	-0.01	-5.4%	\$9,612	29
Metalworking and Industrial Machinery	175	6,361	\$59,759,398	0.90	0.02	-17.2%	\$9,395	36
Vehicle Parts Assembly	86	7,070	\$68,723,506	1.50	0.37	-3.3%	\$9,720	82
Fabricated Textiles	15	428	\$2,812,325	0.37	-1.82	-90.5%	\$6,571	29
Food Products	38	899	\$5,730,122	0.33	-0.11	-28.6%	\$6,374	24
Transportation, Shipping, and Logistics	253	3,630	\$26,407,660	0.87	-0.19	-24.9%	\$7,275	14
Apparel and Leather Goods	37	2,843	\$23,472,879	2.63	0.06	-48.8%	\$8,256	77
Wood Products and Furniture	36	2,723	\$28,607,279	0.99	-1.88	-36.1%	\$10,506	76
Business Support Services	959	4,981	\$46,600,365	0.47	0.02	27.4%	\$9,356	5
Recreation and Tourism	1,135	22,847	\$83,082,038	5.37	3.91	219.3%	\$3,636	24

**Clusters for Foothills counties**

Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes

Establishments    Employment    Wages    Location quot.    Change in LQ    Change in Empl    Mean Qtrly    Mean  
 Q3 2002    Q3 2002    Q3 2002    relative to U.S.    since 1996    since 1996    Wages/Job    Jobs/Est

Pharm. and Med. Tech	31	506	\$3,669,437	0.47	0.17	63.2%	\$7,252	16
Hospitals, Labs, and Specialized Medical Services	170	7,488	\$58,430,072	0.93	-0.01	12.8%	\$7,803	44
Information Tech. and Instruments	54	1,488	\$11,642,175	0.34	-0.10	-19.0%	\$7,824	28
Communication Services and Software	76	357	\$2,879,208	0.09	0.00	41.1%	\$8,065	5
Chemicals and Plastics	135	3,363	\$26,345,233	1.03	-0.51	-31.0%	\$7,834	25
Metalworking and Industrial Machinery	140	6,983	\$55,024,205	1.23	0.24	9.2%	\$7,880	50
Vehicle Parts Assembly	101	9,586	\$74,383,601	2.55	1.21	50.7%	\$7,760	95
Fabricated Textiles	13	626	\$3,454,619	0.67	-5.68	-93.5%	\$5,519	48
Food Products	26	4,255	\$26,484,231	1.95	1.62	520.3%	\$6,224	164
Transportation, Shipping, and Logistics	198	2,966	\$20,979,318	0.89	0.05	4.9%	\$7,073	15
Apparel and Leather Goods	97	9,360	\$63,143,033	10.85	1.87	-34.4%	\$6,746	96
Wood Products and Furniture	83	1,306	\$7,352,866	0.59	-11.22	-89.9%	\$5,630	16
Business Support Services	466	2,688	\$20,349,866	0.32	0.08	74.1%	\$7,571	6
Recreation and Tourism	612	8,927	\$24,962,863	2.63	2.25	553.0%	\$2,796	19

**Clusters for High Country counties**

	Establishments	Employment	Wages	Location quot.	Change in LQ	Change in Empl	Mean Qtrly	Mean
Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey	Q3 2002	Q3 2002	Q3 2002	relative to U.S.	since 1996	since 1996	Wages/Job	Jobs/Est
Pharm. and Med. Tech	24	217	\$1,039,361	0.55	0.54	10750.0%	\$4,790	9
Hospitals, Labs, and Specialized Medical Services	136	2,833	\$19,672,146	0.95	-0.02	5.3%	\$6,944	21
Information Tech. and Instruments	43	1,423	\$9,680,043	0.87	0.31	53.3%	\$6,803	33
Communication Services and Software	67	186	\$1,122,369	0.13	0.03	69.1%	\$6,034	3
Chemicals and Plastics	73	774	\$6,017,465	0.64	-0.01	-3.6%	\$7,775	11
Metalworking and Industrial Machinery	27	1,523	\$9,804,958	0.73	0.07	-9.1%	\$6,438	56
Vehicle Parts Assembly	22	1,418	\$9,936,813	1.02	0.44	31.1%	\$7,008	64
Fabricated Textiles	9	363	\$1,608,779	1.06	-2.09	-80.7%	\$4,432	40
Food Products	12	109	\$578,124	0.14	-0.03	-19.9%	\$5,304	9
Transportation, Shipping, and Logistics	93	759	\$5,591,756	0.61	-0.08	-17.1%	\$7,367	8
Apparel and Leather Goods	18	1,415	\$7,859,412	4.43	-0.97	-58.0%	\$5,554	79
Wood Products and Furniture	41	489	\$3,532,516	0.60	-3.24	-70.3%	\$7,224	12
Business Support Services	292	1,279	\$8,871,826	0.41	0.08	52.8%	\$6,937	4
Recreation and Tourism	400	7,472	\$25,098,970	5.94	4.25	211.7%	\$3,359	26



## **Appendix E: Baseline Inventory of Workforce Development Programs by Cluster, 2003**

The following material represents an inventory of the training and education programs related to each of the industry focus areas from the AdvantageWest 5-year vision plan that are currently offered by the institutions in the region. It represents a pre-implementation baseline against which future developments can be compared.

The detailed list of programs offered by the institutions within each of the sub-regions is included in the tables following this narrative, in Table E-1.

### Advanced manufacturing-related

After years of making the case for offering engineering degree programs in the region, Western Carolina University now offers BS degrees in Manufacturing Engineering Technology, Engineering Technology, and Electrical and Computer Engineering Technology. UNC-Asheville also offers engineering degrees in partnership with North Carolina State University.

The community colleges in the region, particularly those in the Asheville metro and Foothills subregions, offer several AA degrees in relevant fields, including: Industrial Systems Technology, Machining Technology, Welding Technology, and Mechanical Engineering Technology, but there appear to be no programs focused particularly on an industry cluster such as vehicle parts assembly or even on advanced manufacturing more broadly. The Industrial Extension Service provides assistance in productivity and technology enhancement to manufacturing companies, but there is no analogous technical or management training offered to people who may want to enter careers in advanced manufacturing settings. With the exception of a plastics curriculum at Isothermal Community College, there are also no offerings in advanced materials and composites or in chemicals and plastics.

McDowell Tech offers an industrial leadership certificate.

The middle schools in the region offer career prep programs in industrial technology and trade and industrial education, and the high schools have one in engineering technologies.

A cluster resource center<sup>1</sup> for advanced manufacturing industries related to the automotive supply sector could be created along the lines of the hosiery center at Catawba Valley Community College to develop certification programs and industry assistance tailored to that industry.

#### Arts, crafts and design-related

Appalachian State University has a College of Fine and Applied Arts, as well as a furniture technology department. UNC-Asheville, Brevard College and Montreat College also offer bachelors degrees in Fine Arts.

Haywood Community College offers an AA in Professional Crafts and has a wood science program; Caldwell Community College and Technical Institute offers an AA in Fine Arts; Southwest Community College, Isothermal Community College and McDowell Tech each offer AA degrees in graphic design; Western Piedmont Community College has certificates in Business Graphics and Fabric Design, as well as an AA in Professional Crafts (clay) and Interior Design. McDowell Tech grants a cabinetmaking diploma.

The high schools have a program in commercial and artistic production technology.

The Cherokee Museum and the designation of a National Heritage area for the region are also relevant assets for developing more of a focus on historic and cultural preservation, including relevant training programs.

#### Communications and IT-related

Appalachian State University, UNC-Asheville, Lees-McRae College, and Western Carolina University offer bachelors degrees in computer science. WCU also has a BS/BA in Computer Information Systems.

Several of the community colleges in the region offer AA degrees in Computer Programming, Information Systems, Internet Technologies, and Computer Engineering Technology. A few also offer certification programs for Cisco Systems and Microsoft. AB Tech offers a certificate in Database Management. Isothermal and Western Piedmont community colleges offer Broadcast Production Technology AA and diploma programs, and Haywood Tech offers an AA in Film and Video Production Technology.

Western Piedmont Community College has an AA in Electronic Commerce (and one in Internet Technologies). There appears to be an opportunity to add more

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<sup>1</sup> For further information about this concept, see the report on Industry Cluster Resource Centers for the N.C. Community College System prepared by UNC's Office of Economic Development at [www.oed.unc.edu](http://www.oed.unc.edu), under reports.

distance learning programs and other training to support home-based and Internet-based businesses.

#### Environment-related

Brevard and Warren Wilson Colleges offer bachelors degrees in Environmental Studies.

Southwestern Community College and Blue Ridge Community College have an AA in Environmental Science Technology. BRCC also offers certificates in Ecology, Environmental and Safety Management, and Environmental Education, as well as an Environmental Training Center where such programs are held. Haywood and Mayland Community Colleges offer AA degrees in Forest Management Technology, and HCC has a Natural Resources program. Western Piedmont Community College offers an AA in Environmental Science Technology and in Water Resources Management, as well as certificates in industrial waste management, wastewater and water treatment, and environmental lab analysis.

There is an apparent gap in programs related to alternative and renewable energy in the region.

#### Food-related

Tri-County, Blue Ridge, Haywood, McDowell Tech, Caldwell, Western Piedmont, Wilkes and Mayland Community Colleges each offer AA degrees in Horticulture Technology. Southwestern, Wilkes and Asheville-Buncombe Technical Community Colleges each offer AA and certificate programs in Culinary Technology. Western Piedmont offers a Greenhouse Operator certificate.

The middle schools in the region have programs in Agriculture Education, and the high schools have a career prep program in Agriculture and Natural Resources Technologies.

There is an apparent gap in programs related to food processing and packaging, including organic foods.

#### Health care-related

WCU offers masters and bachelors degrees in nursing as well as bachelors in Clinical Laboratory Sciences, Nutrition and Dietetics, Emergency Medical Care, Health Information Management, Recreational Therapy, and Communication Disorders, and a masters in Physical Therapy. UNC-A offers a BS in Nursing in partnership with WCU. Mars Hill College offers a bachelors degree in Allied Health and Brevard College has a BA in Exercise Science.

At least ten of the community colleges in the region offer AA degrees in nursing and several offer certificate programs as well. Seven community colleges have AA programs in Medical Assisting, three have Surgical Technology and Medical Sonography, two have Emergency Medical Science, and two have Medical Laboratory Technology. Caldwell Community College and Technical Institute has an AA degree in Biomedical Equipment Technology, as well as in Nuclear Medicine Technology, Pharmacy Technology, an Ophthalmic Medical Assistant diploma, and certificates in Cardiovascular Sonography and Echocardiography.

The middle and high schools of the region have career prep programs in health occupations and health sciences.

With the exception of the CCCTI program in biomedical equipment technology, there are no programs focused on the manufacture of products for the health care industry.

#### Life sciences-related

ASU, WCU and UNC-A each offer bachelors degrees in Biology and Chemistry.

To date there is now one college in the AdvantageWest region offering BioWork, a 12-week certificate program for biotechnology lab technicians, and that is Asheville-Buncombe Technical Community College. BioWork was designed in collaboration with the North Carolina Biotechnology Center by biotech industry executives, who identified an acute shortage of technician-level labor to staff their biomanufacturing plants. It was first offered at Vance-Granville Community College and is now being replicated at other community colleges in North Carolina.

The high schools in the region have a career prep program in Biological and Chemical Technologies.

The Yellow Creek Botanical Institute is conducting research into the biotechnology of native plants.

#### Recreation and tourism-related

ASU and WCU both offer bachelors degrees in Hospitality and Tourism Management and Recreation Management. Brevard and Warren Wilson Colleges have a Outdoor Leadership diploma program. ASU, Montreat, Lees-McRae, WCU and UNC-A offer performing arts bachelors degrees that could be relevant for developing and staffing tourism attractions.

Blue Ridge Community College offers an AA in Travel and Tourism Technology. Asheville-Buncombe Tech and Southwestern Community College offer AA degrees in Hotel and Restaurant Management. AB Tech also has certificate programs in Hospitality Management and Customer Service. SCC also has an AA program in Outdoor Leadership. Western Piedmont Community College offers an AA in Therapeutic Recreation.

The inventory of programs did not reveal any with a focus on the technologies for the manufacture of outdoor recreation equipment.

#### Retirement-related

WCU has a BS in Construction Management. ASU offers a masters in Gerontology and a bachelors in Construction Technology.

The N.C. Center for Creative Retirement at UNC-Asheville promotes lifelong learning, leadership and community service opportunities for retirees. This is an asset to build on in developing a cluster of services, activities and work for the elderly.

Many of the community colleges in the region offer real estate and appraisal certificate programs. Several also offer trade certificates in carpentry, masonry, electrical and plumbing.

A focus on construction related to housing and accommodations for older persons is not evident in the program descriptions but could be incorporated into existing programs. Western Piedmont Community College offers an AA in Therapeutic Recreation, but an area that may be a gap is programming about adaptive technologies for the elderly.

#### Security-related

WCU grants BS degrees in Emergency Management and Criminal Justice, and ASU and Lees-McRae have bachelors programs in Criminal Justice.

AB Tech, Haywood, Mayland, Isothermal, Southwestern, Western Piedmont and Wilkes Community Colleges offer AA degrees in Criminal Justice Technology. SCC also has an AA in Cyber Crime. CCCTI has AA and certificate programs in Emergency Preparedness Technology. Isothermal has a Public Safety program. AB Tech, Mayland, Western Piedmont, and Wilkes Community Colleges offer certificates in Basic Law Enforcement Training, and WPCC also has a Private Security certificate program. AB Tech also has an AA and certificate in Fire Protection Technology, and Tri-County offers Fire and Rescue Training.

There is no apparent or explicit focus of these programs on forensic sciences or homeland security technologies, each of which may be an opportunity for the future.

**Table E-1: Baseline Inventory of the AdvantageWest Region's Training and Education Offerings within Clusters, by Sub-Region, 2003**

<b>Industry Cluster</b>	<b>Region Overall</b>	<b><u>Highlands</u> Cherokee, Clay, Graham, Jackson, Macon, Swain</b>	<b><u>Asheville metro</u> Buncombe, Haywood, Henderson, Madison, Transylvania</b>	<b><u>Foothills</u> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes</b>	<b><u>High Country</u> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey</b>
<b>Recreation and Tourism</b>	Public Service Technology Career Prep in high schools	AA in Hotel and Restaurant Management at SCC	AA in Hotel and Restaurant Management and certificates in Hospitality Management and Customer Service at AB Tech	AA in Transportation and aviation program at CCCTI	BSBA in Hospitality and Tourism Management and Recreation Management at ASU
	Transport Technologies K12	AA in Outdoor Leadership at SCC	AA and diploma in Travel and Tourism Technology at BRCC	Language and culture and music and dance programs at ICC	BA in Theatre Arts and MM and BM degrees in Music Performance at ASU
		BS in Hospitality and Tourism and Parks and Recreation Management at WCU	AA in Drama and Music at BRCC	Landscape designer certificate and AA in Therapeutic Recreation at WPCC	BA and BS in Performing Arts Studies at Lees- McRae
		BA and MA in Music, BS in Music, and Theatre Arts, and Theatre at WCU	BA in Performance at Montreat College		
			BA in Drama, BA and BS in Music at UNCA		

**Industry Cluster**

**Region Overall**

Highlands  
Cherokee, Clay,  
Graham, Jackson,  
Macon, Swain

Asheville metro  
Buncombe,  
Haywood,  
Henderson, Madison,  
Transylvania

Foothills  
Burke, Caldwell,  
McDowell, Polk,  
Rutherford, Wilkes

High Country  
Alleghany, Ashe,  
Avery, Mitchell,  
Watauga, Yancey

**Recreation and  
Tourism, cont.**

environmental  
education through  
Pisgah Forest Institute,  
BA in Wilderness  
Leadership, and  
diploma in Outdoor  
Leadership at Brevard  
College  
BA in Music and  
Theatre Studies at  
Brevard College  
Bachelor of Music at  
Montreat College  
BS in Recreation at  
Mars Hill  
BA in Music and  
Theatre Arts, BM  
Music Performance,  
BFA Musical Theatre  
at Mars Hill  
BA in Outdoor  
Leadership at Warren  
Wilson  
  
BA in Exercise  
Science at Brevard  
College

<b>Industry Cluster</b>	<b>Region Overall</b>	<b><u>Highlands</u> Cherokee, Clay, Graham, Jackson, Macon, Swain</b>	<b><u>Asheville metro</u> Buncombe, Haywood, Henderson, Madison, Transylvania</b>	<b><u>Foothills</u> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes</b>	<b><u>High Country</u> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey</b>
<b>Advanced Manufacturing-related</b>	<p>Industrial technology Career Prep in middle schools</p> <p>Trade and Industrial Education program in middle schools</p> <p>Engineering technologies Career Prep in high schools</p>	<p>BS in Manufacturing Engineering Technology, Engineering Technology, and Electrical and Computer Engineering Technology at WCU</p> <p>Welding Technology certificate at SCC</p>	<p>Engineering and Applied Technology at AB Tech</p> <p>BRCC offers an AA, diploma and certificate in Mechanical Engineering Technology and participates in NC Manufacturing Certification Program Applied and Engineering Technologies; AA in Manufacturing Engineering Technology at HCC</p> <p>UNCA's engineering degrees through partnership with NCSU</p> <p>AA in Welding and Tool, Dye, and Mold Making at AB Tech</p>	<p>AA, diploma, and certificate in Mechanical Engineering Technology at CCCTI</p> <p>AA in Industrial Engineering Technology, Mechanical Engineering Technology, and Industrial Systems Technology at WPCC</p> <p>AA in Industrial and Engineering Technologies; Focused Industrial Training program at WCC</p> <p>Industrial leadership certificate at McDowell Tech</p> <p>AA in Mechanical Eng. Technology, Manufacturing Technology, Industrial Systems Technology; AA and diploma Mechanical Drafting Technology at ICC</p>	<p>BS and MA in Industrial Technology at ASU</p> <p>AA in Welding and Industrial Systems Technology at Mayland</p> <p>BBS in Industrial and Production Management at Lees-McRae</p>

**Industry Cluster**

**Region Overall**

Highlands  
Cherokee, Clay,  
Graham, Jackson,  
Macon, Swain

Asheville metro  
Buncombe,  
Haywood,  
Henderson, Madison,  
Transylvania

Foothills  
Burke, Caldwell,  
McDowell, Polk,  
Rutherford, Wilkes

High Country  
Alleghany, Ashe,  
Avery, Mitchell,  
Watauga, Yancey

**Advanced Manufacturing-related, cont.**

AA, diploma, and certificate in Welding, Machining Technology, and Industrial Systems Technology at HCC  
AA, diploma, and certificate in Industrial Maintenance Technology and Machining Technology and diploma and certificate in Welding Technology at BRCC

AA, diploma, and certificate in Plastics at ICC

AA, diplomas, and certificates in Industrial Systems Technology and Machining Technology at CCCTI

AA, diploma, and certificate in Welding Technology; diploma and certificate in Machining Technology at ICC

AA and diplomas in Industrial Systems Technology and Machining Technology, Welding Technology diploma and certificate at McDowell Tech

Industry Cluster	Region Overall	<u>Highlands</u> Cherokee, Clay, Graham, Jackson, Macon, Swain	<u>Asheville metro</u> Buncombe, Haywood, Henderson, Madison, Transylvania	<u>Foothills</u> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes	<u>High Country</u> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey
Advanced Manufacturing, cont.				AA, diploma, and certificate in Industrial Systems Technology and Machining Technology; Welding Technology diploma at WCC	
Security-related		Fire and Rescue Training at Tri-County	AA and certificate in Fire Protection Technology at AB Tech	Public Safety program at ICC	BA and BS in Criminal Justice at Lees-McRae
		AA in Criminal Justice Technology and Cyber Crime; Law Enforcement continuing education classes at SCC	AA and BA in Criminal Justice at Shaw CAPE	AA, diploma, and certificate in Emergency Preparedness Technology at CCCTI	AA in Criminal Justice Technology and Basic Law Enforcement Training certificate at Mayland
		BS in Emergency Management and Criminal Justice at WCU	AA in Criminal Justice at HCC	Certificates in Law Enforcement and Private Security at WPCC	BSCJ degree in Criminal Justice at ASU
			Basic Law Enforcement Training certificate and AA in Criminal Justice Technology at AB Tech	AA, diploma, and certificate in Criminal Justice Technology; Basic Law Enforcement Training certificate at WCC	

<b>Industry Cluster</b>	<b>Region Overall</b>	<b><u>Highlands</u> Cherokee, Clay, Graham, Jackson, Macon, Swain</b>	<b><u>Asheville metro</u> Buncombe, Haywood, Henderson, Madison, Transylvania</b>	<b><u>Foothills</u> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes</b>	<b><u>High Country</u> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey</b>
<b>Security-related, cont.</b>				AA in Criminal Justice and Basic Law Enforcement Training; AA, diploma, and certificate in Criminal Justice Technology at ICC Basic Law Enforcement Training certificates at CCCTI, McDowell Tech	
<b>Hospitals, Labs and Medical Services</b>	Health Sciences Career Prep in high schools	AA in Emergency Medical Science, Medical Laboratory Technology, Physical Therapist Assistant, Radiography, Respiratory Therapist; Medical Sonography and Surgical Technology diplomas; Phlebotomy certificate; AA and diploma in Nursing at SCC	AA in Nursing, Dental Hygiene, EMS, Radiography, and Medical Sonography, Surgical Technology, Practical Nursing and Dental Assisting diplomas, certificate in Phlebotomy at AB Tech	AA in Nursing, Medical Assisting and Medical Lab. Technology, diplomas in dental and medical assisting, certificate in medical transcription, and continuing education programs in certified nursing and phlebotomy at WPCC	BS in Clinical Laboratory Sciences, Communication Disorders, and Foods and Nutrition and BSBA in Health Care Management at ASU
	Health Occupations Education program in middle schools	AA in Nursing, AA and diploma in Medical Assisting at Tri-County	BA in Public Administration at Shaw CAPE	AA in Nursing and Psychology, practical nursing diploma and certificate, Health Care and Healthy Living programs at ICC	AA and certificate in Nursing at Mayland

<b>Industry Cluster</b>	<b>Region Overall</b>	<b><u>Highlands</u> Cherokee, Clay, Graham, Jackson, Macon, Swain</b>	<b><u>Asheville metro</u> Buncombe, Haywood, Henderson, Madison, Transylvania</b>	<b><u>Foothills</u> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes</b>	<b><u>High Country</u> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey</b>
<b>Hospitals, Labs and Medical Services, cont.</b>	Health Occupations Students of America in middle and high schools	MSN and BSN Nursing, BS in Clinical Laboratory Sciences, Nutrition and Dietetics, Recreational Therapy, Emergency Medical Care, and Health Information Management; BSEd in Communication Disorders; MPT Physical Therapy at WCU	Health and Human Services; AA in Medical Assisting and Nursing at HCC  AA in Nursing; AA, diploma, and certificate in Surgical Technology at BRCC	AA, diploma, and certificate in Nursing at McDowell Tech  AA in Nursing, Cardiovascular and Medical Sonography, Nuclear Medicine Technology, Medical Assisting, Physical Therapy Assistant, Radiography, and Dental Hygiene; Pharmacy Technology and Computed Tomography and Magnetic Resonance Imaging Technology diplomas and certificate; Ophthalmic Medical Assistant diploma; Cardiovasc. Sonography and Echocardiography certificates at CCCTI	BSN Nursing at Lees-McRae

Industry Cluster	Region Overall	<u>Highlands</u> Cherokee, Clay, Graham, Jackson, Macon, Swain	<u>Asheville metro</u> Buncombe, Haywood, Henderson, Madison, Transylvania	<u>Foothills</u> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes	<u>High Country</u> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey
Hospitals, Labs and Medical Services, cont.			AA in Medical Assisting and Medical Transcription certificate at South College-Asheville  BS in Nursing at UNCA with WCU  Allied Health degree at Mars Hill	AA, diploma, and certificate in Medical Assisting; AA in Nursing; Dental Assisting diploma at WCC  AA in Biomedical Equipment Technology at CCCTI	
Retirement-related	Construction Technology Career Prep in high schools	Real estate licesure courses at Tri-County  Real estate certificate at SCC  Masonry and Plumbing certificates, Electrical AA and diploma at Tri-County Electrical degrees at Tri-County Carpentry, Masonry, Plumbing, and Electrical diplomas and certificates at SCC	Real estate and real estate appraisal certificates at AB Tech  Real estate certificate at BRCC  AA, diploma and certificate in Building Construction Technology at HCC Carpentry diploma at AB Tech Carpentry diploma and certificate; Masonry, Electrical, and Plumbing certificates at BRCC	Real estate program at WCC  Real estate certificate at ICC  Real estate appraisal at WPCC Real estate certificate at McDowell Tech  Real estate certificate at CCCTI  AA, diploma, and certificate in Building Construction Technology; AA in Electrical Technology at WCC	Construction Technology Dept. at ASU  AA in Electrical Technology; Carpentry, Masonry, and Plumbing diplomas at Mayland MA in Gerontology at ASU

<b>Industry Cluster</b>	<b>Region Overall</b>	<b><u>Highlands</u> Cherokee, Clay, Graham, Jackson, Macon, Swain</b>	<b><u>Asheville metro</u> Buncombe, Haywood, Henderson, Madison, Transylvania</b>	<b><u>Foothills</u> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes</b>	<b><u>High Country</u> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey</b>
<b>Retirement-related, cont.</b>		BS in Construction Management at WCU	The North Carolina Center for Creative Retirement at UNCA promotes lifelong learning, leadership, and community service opportunities for retirement-aged individuals	Carpentry and Electrical Technology diplomas at McDowell Tech  Electrical diploma and certificate at CCCTI	
<b>Life Sciences-related</b>	Biological and Chemical Technologies Career Prep in high schools	BS and MS in Biology and Chemistry at WCU	BA in Biology and BA and BS in Chemistry at UNCA; plans in works for BioWork at ABTech	Carpentry and electrical programs at WCC, WPCC  AA in Horticulture Technology, certificate in general horticulture and greenhouse operation at WPCC	MS, BA, and BS in Biology and and BA and BS in Chemistry at ASU
		Yellow Creek Botanical Institute	BS in Biology and Chemistry and dual degree with Washington University in Biomedical Engineering at Warren Wilson  BS in Biology, Botany, Chemistry, and Zoology at Mars Hill  BS in Biology at Montreat College		BS and BA in Biology at Lees-McRae

**Industry Cluster**

**Region Overall**

**Highlands  
Cherokee, Clay,  
Graham, Jackson,  
Macon, Swain**

**Asheville metro  
Buncombe,  
Haywood,  
Henderson, Madison,  
Transylvania**

**Foothills  
Burke, Caldwell,  
McDowell, Polk,  
Rutherford, Wilkes**

**High Country  
Alleghany, Ashe,  
Avery, Mitchell,  
Watauga, Yancey**

**Environment-related**

AA in Environmental Science Technology at SCC

BS in Natural Resources Management at WCU

AA in Environmental Science Technology; certificates in Ecology, Environmental and Safety Management, and Environmental Education; Environmental Training Center at BRCC

AA in Fish and Wildlife Management Technology and Forest Management Technology; Natural Resources program at HCC  
BA in Ecology and Environmental Studies at Brevard  
BA or BS in Environmental Studies and dual degree with Duke University in Forestry and Environmental Management at Warren Wilson  
BS in Environmental Studies at Montreat College

AA in Environmental Science Technology, Water Resources Management , certificates in Environmental Lab Analyst, industrial Waste Management, Water Treatment at WPCC

AA in Forest Management Technology at Mayland

<b>Industry Cluster</b>	<b>Region Overall</b>	<b><u>Highlands</u> Cherokee, Clay, Graham, Jackson, Macon, Swain</b>	<b><u>Asheville metro</u> Buncombe, Haywood, Henderson, Madison, Transylvania</b>	<b><u>Foothills</u> Burke, Caldwell, McDowell, Polk, Rutherford, Wilkes</b>	<b><u>High Country</u> Alleghany, Ashe, Avery, Mitchell, Watauga, Yancey</b>
<b>Environment-related, cont.</b>			BS in Forestry, Environmental Studies, and Atmospheric Sciences at UNCA		
<b>Arts, Crafts, and Design-related</b>	Commercial and Artistic Production Technology in high schools	Cherokee museum	AA in Professional Crafts at HCC	Drawing and painting, needle craft and sewing, and hobbies and crafts programs at ICC	BA in Art and BFA in Graphic Design and Studio Art at ASU
		AA in Advertising and Graphic Design at SCC	BA in Art and Multimedia Arts and Sciences, Bachelor of Fine Arts at UNCA	AA Arts or Fine Arts at CCCTI	ASU's Furniture Technology Dept.
		BA and BFA in Art, MFA in Studio Art at WCU	AA and BA in Fine Arts at Brevard College	Cabinetmaking diploma at McDowell Tech	ASU's Printing Technology Dept.
			BA in Arts at Montreat College	AA in Advertising and Graphic Design at ICC	
			BA in Art at Mars Hill	AA in Drafting and Design, Professional Crafts: Clay, and Interior Design; certificate in business graphics, fabric design at WPCC	
			Wood Science at HCC	AA in Photographic Technology and Advertising and Graphic Design at McDowell Tech	

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<b>Information Technology and Communications Services</b>	<p>Technology Education program in middle schools</p> <p>DPI collaborates with ExplorNet, Cisco, CC system and others to provide IT courses in high schools</p>	<p>AA in Information Systems, Internet Technology, Computer Engineering Technology and Electronics Engineering; Internet design and programming certificates at SCC</p> <p>Information and Office Systems degrees and diplomas at Tri-County</p> <p>BS in Computer Science and Telecommunications Engineering Technology, BS and BA in Computer Information Systems, and computer science continuing education courses at WCU</p>	<p>AA in Computer Programming and Information Systems, Computer technology certification programs at BRCC</p> <p>AA in Network Technology and Microcomputer Operator certificate at South College-Asheville</p> <p>SofTrain offers technical and programming and end-user applications training for businesses, government, public</p>	<p>AA in Computer Programming, Internet Technologies, and Electronics Engineering Technology; AA, diploma, and certificate in Information Systems; Microsoft User and Cisco Systems certification programs at CCCTI</p> <p>AA in Network Administration and Support and Computer Engineering; AA and certificate in Information Systems and Computer Programming; Computer Skills program at ICC</p> <p>AA in Information Systems, computer certificate programs at McDowell Tech</p>	<p>MS and BS in Computer Science and BSBA in Information Systems at ASU</p> <p>BS in Computer Information Systems at Lees-McRae</p> <p>AA in Computer Engineering Technology, Electronics Engineering Technology, and Information Systems at Mayland</p>

**Industry Cluster**

**Region Overall**

Highlands  
Cherokee, Clay,  
Graham, Jackson,  
Macon, Swain

Asheville metro  
Buncombe,  
Haywood,  
Henderson, Madison,  
Transylvania

Foothills  
Burke, Caldwell,  
McDowell, Polk,  
Rutherford, Wilkes

High Country  
Alleghany, Ashe,  
Avery, Mitchell,  
Watauga, Yancey

**Information Technology and Communications Services, cont.**

AA in Information Systems, Internet Technologies, and Telecommunications and Network Engineering Technology at HCC

AA in Computer Engin., Computer Programming Tech., Information Systems; AA and certificates in Networking Tech. ; and certificate in Database Mgmt at AB Tech

AA in Mass Communication and Film and Video Production Technology, certificate in Video Editing and Post-Production Operations at HCC

AA in Computer Engineering Technology; AA, diploma, and certificate in Computer Programming, Internet Technologies, and Information Systems; AA and certificate in Electronics Engineering Technology at WCC

AA in Internet Technologies, Electronic Commerce, Information Systems, Computer Engineering Technology, Office Systems Technology, Certificate in Networking at WPCC

AA, diploma, and certificate in Broadcast Production Technology at ICC

BS in Communication, Electronic Media/Broadcasting at ASU

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<b>Information Technology and Communications Services, cont.</b>			BS in Computer Information Systems at Montreat College; BS in Computer Science at Mars Hill, UNCA dual degree with Washington University in Computer Engineering and Computer Science at Warren Wilson	AA and diploma in Broadcasting and Production Technology at WCC	
<b>Food-related business</b>	Agriculture Education program in middle schools Agriculture and Natural Resources Technologies Career Prep in high sch. Family and Consumer Sciences Education program in middle schools	AA and certificate in Culinary Technology at SCC Horticulture certificate and diploma at Tri-County	AA and certificates in Culinary Technology at AB Tech AA and dipoloma in Horticulture Technology at BRCC AA in Horticulture Technology at HCC	Cooking program at ICC AA and certificate in Culinary Technology at WCC Horticulture diploma at McDowell Tech  AA in Horticulture Technology at CCCTI AA, diploma, and certificate in Horticulture Technology at WCC AA in Horticulture Technology, certificate in general horticulture and greenhouse operation at WPCC	AA in Horticulture Technology at Mayland