

**Table 44
Goals, Objectives & Strategies (2004 CEDS)**

GOAL 1: To build a more effective regional approach to economic development.				
ID	Objective/Strategy	Lead Responsibility	Resources	Priority
1-1	<p>To create and submit a <i>Comprehensive Economic Development Strategy</i> to EDA.</p> <ul style="list-style-type: none"> ❖ <i>Create a CEDS Committee with regional representation.</i> ❖ <i>Establish and document process.</i> ❖ <i>Develop mechanisms for ongoing process.</i> 	CCRPA/CCCCSC	CCRPA/Central Connecticut Corridor municipalities, EDA	S
1-2	<p>To build support within the region for implementation of the <i>Comprehensive Economic Development Strategy</i>.</p> <ul style="list-style-type: none"> ❖ <i>Identify strategic partners.</i> ❖ <i>Hold an informational session to gather input.</i> ❖ <i>Hold a regional forum to unveil the plan.</i> ❖ <i>Present the CEDS at a staff meeting of the participating municipalities.</i> ❖ <i>Ask CEDS members to presents key CEDS items to their own organization and to civic organizations</i> 	CCRPA/CCCCSC	CCEDA/EDA TA Grant	S
1-3	<p>To develop an economic development program for the region's municipalities.</p> <ul style="list-style-type: none"> ❖ <i>To develop a program to provide periodic training and team-building program for city and town elected and appointed officials and board and commission members, municipal employees and residents regarding their roles in economic development.</i> 	CCRPA/CCCSC	CCEDA/EDA TA Grant	S
1-4	<p>To continue to foster an effective working relationship with key allies and resources.</p> <ul style="list-style-type: none"> ❖ <i>Identify capabilities/programs of key allies and resources such as SCORE and to take better advantage of services.</i> ❖ <i>Further develop the list of programs, resources and programs in CEDS and list contact name, address, fax, e-mail and web site. Post on web site.</i> ❖ <i>To host a regional forum with representatives from the</i> 	CCRPA/CCCSC	CCEDA/EDA TA Grant	S

	<p><i>region's institutions of higher learning/training to forge relationships and to promote collaboration for mutual benefit.</i></p> <ul style="list-style-type: none"> ❖ <i>To hold an Economic Development Summit.</i> 			
1-5	<p>To hold a regional forum with human service providers to discuss the region's key human service issues and to create a strategy for improvement.</p> <ul style="list-style-type: none"> ❖ <i>Identify key participants.</i> ❖ <i>Quantify daycare, preschool, school readiness and related programs as it relates to economic development.</i> 	CCRPA/United Way, Others to be determined	TBD	M
1-6	<p>To develop an internal and external marketing strategy For the region.</p> <ul style="list-style-type: none"> ❖ <i>Identify appropriate participants.</i> ❖ <i>Use information used in the cluster research to identify the types of businesses desired to attract and to take advantage of the region's competitive advantages.</i> ❖ <i>Hold quarterly meetings with commercial and industrial real estate brokers.</i> 	CCEDA	CCEDA/NU EDA TA Grant	M
1-7	<p>To further develop a web site, with appropriate links to tell the story of the region.</p> <ul style="list-style-type: none"> ❖ <i>Research data to be added to site.</i> ❖ <i>Ask for feedback from users.</i> ❖ <i>Make site interactive.</i> ❖ <i>Update site monthly at a minimum.</i> ❖ <i>Register on major search engines.</i> ❖ <i>Add hot links to appropriate sources.</i> 	CCRPA	CCRPA in house	S

GOAL 2: To build the physical, financial and human capital capacity in the region necessary to support economic development.				
ID	Objective/Strategy	Lead Responsibility	Resources	Priority
2-1	<p>To develop/expand essential tools needed to promote economic development</p> <ul style="list-style-type: none"> ❖ <i>Prepare, maintain and disseminate a comprehensive list of properties suitable for occupancy by office, business and</i> 	CCRPA	DECD, CERC. IEDC EDA TA Grant	S

	<p>personal services, research & development, manufacturing and retail uses.</p> <ul style="list-style-type: none"> ❖ <i>Explore ways to develop a real estate and marketing information database. This database should include all typically requested data fields, zoning and community profile information, economic and tax information, recent sales or leasing information, properties currently available, maps and diagrams of available sites, and other information. The recently developed Recommended Data Standards available from the International Economic Development Council should serve as a model for the data section.</i> 			
2-2	<p>To improve infrastructure & services in the region.</p> <ul style="list-style-type: none"> ❖ <i>Alleviate congestion and improve traffic access.</i> ❖ <i>Construct a key segment of Route 72.</i> ❖ <i>Construct the New Britain Hartford busway.</i> ❖ <i>Enhance accessibility to future busway.</i> 	CCRPA	DOT, FTA, FHWA	M-L
2-3	<p>To increase site availability.</p> <ul style="list-style-type: none"> ❖ <i>Identify key sites in region for development.</i> ❖ <i>Enhance economic development opportunities along New Britain Hartford busway.</i> ❖ <i>Encourage redevelopment and adaptive reuse in brownfields and grayfields sites.</i> 	CCRPA, P & Z, EDC	DOT, DEP, DECD	M-L
2-4	<p>To create better linkages for incubating, nesting and growing/retaining the fledgling businesses in the region.</p> <ul style="list-style-type: none"> ❖ <i>Explore need for additional incubators.</i> ❖ <i>Research successful incubators.</i> ❖ <i>Hold meeting with Connecticut Innovations.</i> 	CCRPA, CCEDA, P & Z, EDC	DECD, CI, National Association of Incubators	M
2-5	<p>To increase awareness of the value of historic preservation.</p> <ul style="list-style-type: none"> ❖ <i>Review historic resource inventories and add new data if necessary.</i> ❖ <i>Take an active role in encouraging properties to be listed to state and national register of historic places.</i> ❖ <i>Encourage adaptive reuse instead of demolition.</i> ❖ <i>Obtain good and bad examples to educate population.</i> ❖ <i>List on web site.</i> 	CCRPA	CT Main Street EDA TA Grant	S

	❖ Hold regional forum on historic preservation and invite CT Main Street and new CEO of newly combined historic preservation office.			
2-6	To improve the capacity for and develop support for improving downtowns in the region. ❖ Hold forum and invite CT Main Street to share best practices, principles and techniques. ❖ Organize bus trip to successful downtowns. ❖ Investigate façade improvement programs and ask municipalities to incorporate into work program.	CCRPA	CT Main Street EDA TA Grant	S
2-7	Increase the number of units of senior housing in the region. ❖ Explore the need to create additional units of senior housing.	Municipal P & Z	TBD	L
2-8	To Increase program effectiveness in the region through the pooling of resources for planning, expertise, marketing, cooperative ventures and exploitation of regional strengths, educational/training and other related items. ❖ Identify key organizations. ❖ Organize and hold meeting of key organizations. ❖ Implement recommendations.	CCRPA, CCEDA	Area organizations	S
2-9	To effectively educate the workforce to meet the challenges of the new millennium. ❖ Develop a program to offer seminars/workshops or other opportunities for students to learn and understand the importance of desirable work habits, attitudes, and communication and reasoning skills. ❖ Implement strategic directions and supporting initiatives identified in the Central Connecticut Regional Economic Development Action Agenda 1997.	TCC, CC, & ITBD CCEDA	TCC, CC, & ITBD	M
2-10	To train/create awareness/develop pride in people working in the front line sectors including police, restaurant, retail, hotel, municipal, attractions and transportation industries. ❖ To train/create awareness/develop pride in people working in the front line sectors including police, restaurant, retail, hotel, municipal, attractions and transportation industries.	Tourism Districts, CC	Tourism Districts, CC	M

GOAL 3: To achieve an effective transition of the region's economic base through business retention, expansion, attraction, creation and transition.				
ID	Objective/Strategy	Lead Responsibility	Resources	Priority
3-1	<p>To foster the growth of industry clusters.</p> <ul style="list-style-type: none"> ❖ <i>Identify and study other industry clusters most appropriate in the region, which would help to diversify the regional economy if expanded.</i> ❖ <i>Develop awareness of region's clusters and meet with Department of Economic and Community Development to coordinate.</i> ❖ <i>Build a larger medical and health care cluster.</i> 	CCRPA, CCEDA	DECD, CERC	S
3-2	<p>To expand tourism capacity and programs.</p> <ul style="list-style-type: none"> ❖ <i>Develop an educational program about the benefits of tourism in the region.</i> ❖ <i>Increase the capacity and visibility of the Central Connecticut Tourism Region and the Northwest Connecticut Convention & Visitors Bureau.</i> ❖ <i>Develop an industrial heritage tourism attraction.</i> ❖ <i>Create a major cultural attraction in the region.</i> 	Tourism Districts	Tourism Districts	M
3-3	<p>To reduce retail leakage in the region.</p> <ul style="list-style-type: none"> ❖ <i>Create a program to buy locally and shop in the region.</i> ❖ <i>Increase downtown shopping opportunities.</i> 	CC	CC	M

GOAL 4: To improve the economic prosperity of the region's residents and increase the profitability of its businesses.				
ID	Objective/Strategy	Lead Responsibility	Resources	Priority
4-1	<p>To raise the standard of living of the region's residents.</p> <ul style="list-style-type: none"> ❖ <i>Continue to support job training programs especially Bristol Technical School and workforce development.</i> ❖ <i>Retain high quality jobs.</i> 	CCEDA	DOEd, DOL, DECD	L
4-2	<p>To increase job opportunities for all the Region's residents.</p> <ul style="list-style-type: none"> ❖ <i>Meet with newly merged Workforce Development Board.</i> 	Regional Workforce Development Boards	Regional Workforce Development Boards	S

	<ul style="list-style-type: none"> ❖ <i>Develop a strategy for cooperation.</i> ❖ <i>Add recommendations to CEDS update.</i> 			
4-3	<p>To encourage the development of women and minority owned businesses as a source of total community involvement.</p> <ul style="list-style-type: none"> ❖ <i>Review municipal Affirmative Action Programs and recommend appropriate language if necessary.</i> ❖ <i>Review clause in municipal Request for Proposals/Bids and recommend appropriate language if necessary.</i> ❖ <i>Encourage participation in set aside programs.</i> 	CCRPA	CC, HRO, Status of Women	M
4-4	<p>To ensure implementation of the region's priority projects.</p> <ul style="list-style-type: none"> ❖ <i>Track projects on an annual basis and include in CEDS update.</i> 	CCRPA, CCCSC	CCRPA, CCCSC	S-M

Draft Goals and Objectives (2011)

Goal X: Promote responsible development patterns that improve the region's quality of life, provide recreational amenities, use resources wisely, and contribute to economic development.

Objective/Strategies	Partners	Time Frame
<p>Encourage commercial development in town and city centers.</p>	<p>CCRPA, CT Main Street, Municipalities</p>	<p>L</p>
<ul style="list-style-type: none"> When considering projects that are commercial in nature for inclusion in future CEDS updates, prioritize projects that support downtown redevelopment 		
<ul style="list-style-type: none"> Support town led efforts to redevelop downtowns, such as Bristol's Depot Square Project and New Britain's Downtown Revitalization project. 		
<ul style="list-style-type: none"> Encourage municipalities to pursue designation as Connecticut Main Street Communities and support those efforts. 		
<p>Ensure that top priority projects use existing infrastructure or take steps to minimize the need for new infrastructure.</p>	<p>CCRPA, Municipalities</p>	<p>M</p>
<ul style="list-style-type: none"> Coordinate with municipal and regional conservation and development planning processes to identify growth areas. 		
<ul style="list-style-type: none"> Continue to prioritize economic development projects at the regional level that make use of existing infrastructure. 		
<p>Support municipal led efforts to minimize the amount of new land developed for residential purposes on a per capita basis.</p>	<p>CCRPA, Municipalities, OPM</p>	<p>S</p>

<ul style="list-style-type: none"> • Send representatives to Plan of Conservation and Development meetings. 		
<ul style="list-style-type: none"> • Update the region’s build-out analysis. 		
Increase the use of energy efficiency programs among regional firms.	CCRPA, Northeast Utilities, Connecticut Clean Energy Fund	L
<ul style="list-style-type: none"> • Invite the Connecticut Clean Energy Fund to hold a presentation for area firms. 		
<ul style="list-style-type: none"> • Invite Northeast Utilities to hold a presentation regarding their efficiency programs for area firms. 		
<ul style="list-style-type: none"> • Study the potential to increase service sharing among area firms. 		
<ul style="list-style-type: none"> • Research methods of assisting area firms with setting up innovative partnership to reuse by-products from industrial processes. 		
Increase the effectiveness and regional support of historic preservation policies and incentives.	Municipalities, CT Trust for Historic Preservation	L
<ul style="list-style-type: none"> • Encourage towns to create/update historic resource inventories. 		
<ul style="list-style-type: none"> • Advocate for policies that encourage adaptive reuse instead of demolition. 		
<ul style="list-style-type: none"> • Advocate for improved state and local policies regarding historic preservation, to make preservation a more attractive and less burdensome option. 		
Discourage development in environmentally inappropriate areas of the region.	DEP, OPM, Municipalities, CCRPA	S
<ul style="list-style-type: none"> • Create updated maps of development impediments in the region. 		

<ul style="list-style-type: none"> • Prioritize projects that avoid environmental impediments. 		
Develop a strategy to provide greater support to the region’s agricultural cluster.	CT Farm Bureau Association, CCRPA	M
<ul style="list-style-type: none"> • Meet with representatives from regional farms and food processors to explore the possibility of creating a regional agriculture plan. 		
<ul style="list-style-type: none"> • Seek grant funding for a regional agricultural plan. 		
<ul style="list-style-type: none"> • Coordinate with statewide agricultural organizations. 		
<ul style="list-style-type: none"> • Coordinate regional tourism and agricultural plans to better tap into the growing “agritourism” market. 		
<ul style="list-style-type: none"> • Support statewide efforts to better market Connecticut agricultural products. 		

Goal X: Attract, retain, and develop a skilled and diverse workforce that meets the needs of existing employers and is attractive to new firms providing high quality, high paying jobs.

Objective/Strategies	Partners	Time Frame
Provide a full range of high quality, attractive housing options, from single-family homes to studio apartments.	Municipalities; Partnership for Strong Communities	L
<ul style="list-style-type: none"> • Support town-led Incentive Housing Zone programs that encourage the construction of affordable workforce housing. 		
<ul style="list-style-type: none"> • Support mixed-use commercial developments. 		
<ul style="list-style-type: none"> • Research grants to rehabilitate the existing housing stock, especially near town and city centers. 		
Increase the number of young professional working for the region’s companies.	HSEP, Chambers of Commerce	M

<ul style="list-style-type: none"> • Work with area companies to list internship opportunities on the Hartford-Springfield Economic Partnership’s Interhere.com website. 		
<ul style="list-style-type: none"> • Help area companies coordinate with nearby community colleges and high school vocational programs to provide students with work-study opportunities. 		
Improve the availability, and responsiveness to the needs of industry, of workforce training and education programs.	Capital Workforce Partners, Chambers of Commerce, CCSU, Tunxis	M
<ul style="list-style-type: none"> • Coordinate efforts with Capital Workforce Partners. 		
<ul style="list-style-type: none"> • Reach out to area businesses to assess how well their training needs are being met. 		
<ul style="list-style-type: none"> • Meet with industry cluster representatives to assess how well their workforce needs are being met. 		
<ul style="list-style-type: none"> • Where appropriate, work with educational institutions to develop new programs that respond to industry needs. 		
Goal X: Build a stronger regional economic development program that achieves closer coordination between municipalities and between Central Connecticut, the state, and other surrounding regions.		
Objective/Strategies	Partners	Time Frame
Continue to plan on a regional level for the development of Central Connecticut’s economy.	CCRPA, Alliance	S (continuous)
<ul style="list-style-type: none"> • Complete 5-year update of CEDS 		
<ul style="list-style-type: none"> • Apply for and receive designation as an Economic Development District 		
<ul style="list-style-type: none"> • Hold informational meetings in each municipality. 		

<ul style="list-style-type: none"> • Hold a regional forum to unveil the plan and submit feedback. 		
<ul style="list-style-type: none"> • Solicit additions/changes to the plan from each municipality on an annual basis. 		
<ul style="list-style-type: none"> • Submit annual CEDS updates on-time. 		
<ul style="list-style-type: none"> • Encourage municipal officials to take advantage of economic development training opportunities from outside organizations. 		
Participate in at least two inter-regional planning efforts affecting economic development.	CCRPA	Continuous
<ul style="list-style-type: none"> • Participate in the Hartford-Springfield Economic Partnership (HSEP). 		
<ul style="list-style-type: none"> • Work with HSEP to create a regional sustainability plan. 		
<ul style="list-style-type: none"> • Coordinate efforts with partners identified in other goals, such as Capital Workforce Partners and regional tourism councils. 		
To ensure that the needs of existing clusters are being met, expand Alliance membership to include a representative from each cluster.	Alliance, State Cluster organizations (CURE, METAL, etc...)	S
<ul style="list-style-type: none"> • Amend Alliance bylaws to permit each cluster to be represented. 		
<ul style="list-style-type: none"> • Meet with industry cluster organizations. 		
<ul style="list-style-type: none"> • Identify local companies in each existing cluster. 		
<ul style="list-style-type: none"> • Invite representatives of companies to join the Alliance. 		
Better utilize existing economic development and marketing tools.	Municipalities, CERC, Northeast Utilities	S
<ul style="list-style-type: none"> • Increase the number of regional sites on CERC's SiteFinder service. 		
<ul style="list-style-type: none"> • Update regional SiteFinder listings on a regular basis. 		
<ul style="list-style-type: none"> • Encourage municipalities to use Northeast Utility's E-Pulse software to manage economic development activities. 		

Develop a regional marketing strategy focused on key industry clusters.	Cluster Organizations, Northeast Utilities, Municipalities	L
<ul style="list-style-type: none"> Identify state/region led industry marketing efforts and coordinate with them. 		
<ul style="list-style-type: none"> Continue cluster research to identify marketing opportunities. 		
<ul style="list-style-type: none"> Hold a regional meeting with commercial and industrial real estate brokers and site selectors. 		
<ul style="list-style-type: none"> Further develop and update a regional economic development website with relevant data and links to municipal/regional resources. 		
Goal X: Foster an environment that is conducive to the creation of new firms and the formation or strengthening of regional innovation clusters.		
Objective/Strategies	Responsible Party	Time Frame
Ensure that adequate incubator space is available throughout the region.	ITBD, Connecticut Enterprise Center	M
<ul style="list-style-type: none"> Study the need for additional incubators in the region, especially in Bristol. 		
<ul style="list-style-type: none"> If new incubators are needed, identify potential sites and investigate available resources. 		
Help firms in the region's business incubators to "graduate" and become self-sufficient.	ITBD, Connecticut Enterprise Center, Chambers of Commerce	L
<ul style="list-style-type: none"> Meet with incubator staff/tenants to better understand the needs of incubator firms. 		
<ul style="list-style-type: none"> Study the availability of workspace near existing incubators. 		
<ul style="list-style-type: none"> Investigate methods of providing shared services to young firms 		

outside of incubator settings.

<p>Increase the availability of early stage venture capital.</p>	<p>Municipalities, Capital District Revolving Loan Fund</p>	<p>L</p>
<ul style="list-style-type: none"> Investigate the possibility of using existing regional financing resources to provide seed capital to startups. 		
<ul style="list-style-type: none"> Advocate for the expansion of the CT Innovations pre-seed capital fund. 		
<p>Investigate the possibility of building a strong regional cluster around Central Connecticut's growing <i>Information</i> sector.</p>	<p>CCRPA, Bristol Chamber of Commerce</p>	<p>L</p>
<ul style="list-style-type: none"> Reach out to companies in the information sector, especially ESPN. 		
<ul style="list-style-type: none"> Study supplier relationships among existing information companies. 		
<ul style="list-style-type: none"> Analyze existing ties between firms and identify gaps in the cluster. 		
<p>Increase access to lean manufacturing consultation services for the region's manufacturing cluster.</p>	<p>Chambers of Commerce, ITBD, METAL</p>	<p>M</p>
<ul style="list-style-type: none"> Work with ITBD to identify sources of funding for lean manufacturing consultation. 		
<ul style="list-style-type: none"> Identify firms in the region that are prime candidates for lean manufacturing process improvements. 		
<ul style="list-style-type: none"> Publicize results of lean process improvements. 		
<ul style="list-style-type: none"> Advocate for greater state and federal assistance. 		
<p>Goal X: Maintain, improve, and develop the region's infrastructure so that it meets the needs of existing and growing industries and clusters.</p>		
<p>Objective/Strategies</p>	<p>Partners</p>	<p>Time Frame</p>

Provide at least X new sites that are ready for development by 2016.	Municipalities, EDA	L
<ul style="list-style-type: none"> Identify key sites in the region for development. 		
<ul style="list-style-type: none"> Where possible/feasible, ensure that local regulatory approvals are obtained/lined-up for key sites. 		
<ul style="list-style-type: none"> Advocate for a more coordinated and streamlined approach to land use/development regulations. 		
<ul style="list-style-type: none"> Study the need for lab space in the bioscience zone. 		
Plan and/or develop at least one brownfield project in the region by 2016.	Municipalities, CT Brownfields Redevelopment Authority	L
<ul style="list-style-type: none"> Identify brownfields in key growth areas. 		
<ul style="list-style-type: none"> Identify resources to clean up and develop sites. 		
Improve the availability and usability of alternative modes of transportation throughout the region.	ConnDOT, CCRPA, Amtrak, Municipalities, CT Transit	L
<ul style="list-style-type: none"> Advocate for improvements to the region's bus system, such as improved signage, streamlined routes, and increased availability. 		
<ul style="list-style-type: none"> Encourage development (transit oriented development) around stops along the proposed New Britain-Hartford Busway. 		
<ul style="list-style-type: none"> Encourage development (TOD) around the Berlin Amtrak station. 		
<ul style="list-style-type: none"> Support upgrades to, and further development of, passenger rail service in the region. 		
<ul style="list-style-type: none"> Support upgrades to the region's freight rail lines. 		
Support the continued maintenance and enhancement of the region's roads and highways.	ConnDOT, CCRPA, Municipalities	L
<ul style="list-style-type: none"> Support projects in the region's <i>Long Range Transportation Plan</i> that improve road conditions. 		

Draft Industry Prospects Report

Executive Summary

Economic conditions in Central Connecticut have deteriorated over the past few years, necessitating strategic action. Some of the issues facing the region can be attributed in part to the recent nation-wide recession and subsequent economic stagnation. Underneath the headline grabbing recession, however, are longer-term changes in the economy that must be addressed. In order to fully address these changes, and overcome their negative effects, we must first examine the region's economy and understand the structural changes that are occurring. To address those changes, we must formulate a strategic plan that will use the region's existing assets to transform the economy.

This report provides a brief overview of the region's economy, discusses the "industry cluster" concept, and identifies two groups of target clusters. The first group contains industry clusters that are targets of growth. These groupings of firms are expected to grow significantly in the region and the nation in the coming years, and represent the region's best chance for developing stronger economy. The second group contains clusters that may not represent opportunities for significant growth, but are nonetheless important to the region, either due to their size, or due to indirect benefits. The strategies pursued in the region's new CEDS should consider the needs of these both groups of clusters in order to build a stable base for continued economic growth.

Economic Conditions

Most indicators show that the business climate in the region has cooled since the 2004 CEDS was completed. Vacancies have increased, retail sales have decreased, and volume of trade filings has slowed considerably. The number of firms in the region did grow (from 2004 to 2009 by 2.9%), but at a slower pace than the national average (7.1%).

The region has experienced moderate employment growth, but significant changes in industry concentrations have occurred. Between 2004 and 2009 the region added 1,141 jobs, an increase of 1.4%. At the same time the nation lost 0.5% of its jobs. Service sector jobs, such as those in *Finance and Insurance, Health care and social assistance, Accommodation and food services, and Information* all showed greater than average growth. The region's traditional strengths, such as construction, Manufacturing, Transportation and warehousing, and Retail trade, all lost jobs.

These changes have meant a loss of wages. High paying manufacturing jobs have declined while lower paying health services jobs have increased. Positive growth in the Information sector and the Finance and Insurance sector should help make up for some of those losses.

The unemployment rate has increased dramatically as a result of the economic downturn. In January of 2007 the unemployment rate was 5.9% but had dropped to 4.8% by October of that year, just 0.1% higher than the national rate. One year later the rate was 6.0% and a year after that it was 9.2%. Currently the unemployment rate stands at 10.8% (as of February 2011) while the na-

tional rate is 9.5%. Some of this can be attributed to larger seasonal effects in the Northeast, but Connecticut's rate, as a whole, is just 9.6%.

Industry Clusters

To effectively address structural economic problems, the region will pursue an industry cluster based strategy. Industry clusters are geographic agglomerations of interrelated and interconnected firms. These firms gain competitive advantages by locating near suppliers and users of their products. Geographic proximity allows them to tap into common labor pools, access common supply chains, and more easily share knowledge that cannot easily be codified.

A cluster based strategy targets the entire cluster instead of individual businesses. Infrastructure and education programs that serve common needs of a cluster are preferred over those that serve a single company. Effort is also made to fill in the “gaps” in clusters (companies providing important inputs or producing important outputs), so that more of the cluster's needs can be met locally. This further grounds the cluster in the region and strengthens the position of member companies.

Proposed Target Clusters

An analysis of industry clusters in the state, broader region, and Central Connecticut was performed. Data on nationally identified clusters was examined to determine which ones are growing in Hartford County, and which ones are declining. The results of this analysis were cross referenced with a review of state and regional cluster initiatives, as well as industry and employment reports. Based on this analysis a list of proposed target clusters was identified. The following explores them in greater detail. The first three clusters represent opportunities for significant job or wealth creation; the last three are clusters that may not result in significant job growth, but should still be regional priorities for other reasons. The region's CEDS should include goals, objectives, and strategies designed to support these clusters.

Bioscience

Bioscience can range from the genetic engineering of animals and agriculture, to the creation of new drugs, and to the manufacture of medical devices. It involves basic research at institutions such as universities, product research by firms, the manufacture of devices or chemicals, and crafting pieces of devices¹. Workforce requirements range from highly skilled laborers to highly educated researchers.

This emerging cluster is centered in Farmington, near the UConn Health Center, but is spilling over into the region. A new bioscience zone in areas adjacent to UConn's Health Center offer incentives for bioscience firms to locate there. Already, a couple dozen companies (and counting) in the region participate in activities related to this field.

¹ Following a report in the May 2007 issue of *The Connecticut Economic Digest*, we omit drug stores from the definition of the bioscience cluster.

In addition to incentives offered in the bioscience zone, the region's strength in manufacturing may be an asset. New medical device firms can contract with job shops in the region to manufacture parts and prototypes. Not only does this strengthen the cluster, but it provides new opportunities for the manufacturing sector.

Health Services

Companies in this cluster include hospitals, physicians offices, dentists, and nursing homes. Generally, since these are services that are provided, they require the physical presence of the customer and thus tend to serve local needs. For all but the most complex procedures, customers seek out such services locally. So, to a certain extent, all regions of the country will support a certain number of health services firms.

While it is true that almost every region in the country contains such services, a large enough grouping of them—one that attracts outside money—may still be considered a cluster. Urban centers near largely rural areas will attract outsiders for complicated surgeries. Services such as nursing homes may also cluster and serve a greater than local market. This is true of the Central Connecticut region, which has a much higher level of employment concentration than average. The region is also home to three hospitals (and is in close proximity to others) and many significant other health resources.

The Health Services cluster is already very large, but there is still potential for growth. This sector grew by 9.4% between 2004 and 2009, a rate that was slower than the national average, but still impressive. The region still enjoys a very high concentration of employment in this sector compared to the nation. The numerous hospitals in the region are a draw to surrounding regions (hospital employment is three times more concentrated in the region than in the nation).

There is also some overlap with the biosciences cluster. Many of the laboratory technician skills that are necessary for hospital employees are also in demand from bioscience companies. There is also ample opportunity for partnerships between area hospitals and bioscience firms.

Average wages in this cluster are relatively low, but it does provide employment for residents with a range of education levels. Entry level jobs are available for those with just high school diplomas while technician jobs may be filled by those with Associate's degrees or certificates. A strong health services cluster also draws individuals with high levels of educational attainment, such as doctors and nurses.

Printing & Publishing

The 2004 CCC CEDS identified a telecommunications cluster in the region. It consisted of firms operating cable and other pay television services and direct mail advertising companies. NAICS based definitions were not included in the CEDS, but at the national level a *Printing and Publishing* cluster has been identified, encompassing many of the same industries. Included in this sector are broadcasting firms, commercial printers, publishers of printed materials, sign manufacturers, graphic designers, and others.

Printing and publishing, with an emphasis on broadcasting, is not yet recognized as a cluster in Connecticut, but it has considerable potential. ESPN employs somewhere around 4,000 people at its Bristol campus and recently relocated another of its operations to the region. Nearly 70 other companies in the region also participate in printing and publishing activities.

Not only are there a lot of jobs in this cluster, but they are growing and pay well. The Information sector (which encompasses most of this cluster) grew by 42% between 2004 and 2009, far outpacing most other sectors of the economy. The average wage in that sector was also \$90,000, over twice the average regional wage of all sectors combined. Throughout Hartford County, the Printing & Publishing cluster paid an average of nearly \$71,000 per year, far above the region's average wage of \$48,000.

The extent of interconnectedness between these companies is currently unknown. Data limitations prevented a full cluster analysis. Besides which, determining input and output flows between non-production firms is a difficult task. More needs to be known about the potential for this cluster, but it represents one of the region's brightest prospects for growing high paying jobs and attracting highly educated young professionals.

Metal Manufacturing

Companies in the metal manufacturing cluster include companies that work with metal in many forms. Firms in the *Primary Metal Manufacturing* sector work with metal ore and refine it. Those in *Fabricated Metal Manufacturing* turn that refined metal into basic metal products such as wire or sheets. Other firms in the cluster go a step further and construct actual products out of the metal such as machines, silverware, or jewelry. Firms servicing these companies, such as warehouse operations are also included.

While employment in this cluster is declining regionally and nationally, some positive indicators were found. The region lost jobs at a slower than average rate, beating both national and industry trends. There is also some evidence that while employment has declined overall, the size of employers has increased, indicating that existing companies are getting stronger. Nationally, evidence also indicates that manufacturing, measured in dollar output, is actually getting stronger.

The overall prospects for job creation remain weak, but this cluster was chosen as a target for a few reasons. Manufacturing represents a large portion of the region's economy and provides high paying jobs. Due to productivity increases, jobs are being lost, but the ones that remain are higher tech jobs, requiring advanced skills. Firms that produce high value-added products seek out this skilled labor, and seek out markets with strong intellectual property laws. Central Connecticut can meet both of these needs. There may also be important linkages between firms in this cluster and firms in the bioscience cluster discussed above.

Aerospace and Defense

The State of Connecticut defines the Aerospace cluster fairly narrowly, but Metro Hartford uses a broader definition that expands it to include defense and advanced security companies. Using the broader definition, it encompasses aerospace companies that are involved in making parts for air-

planes and helicopters, assembling those vehicles, aircraft restoration, prototype design, and making major modifications to aircraft. Other defense manufacturing is included by Metro Hartford, as well as the manufacture of security devices such as monitoring equipment and security systems.

While direct cluster employment in the region was relatively low (just 899 employees), this cluster shows signs of improvement. A recent deal struck by United Technologies should ensure a considerable aerospace presence in the broader region for decades to come. UTC is manufacturing engines for a new jet in nearby Middletown, and other engineering activities are taking place throughout Hartford County. The uncertain situation regarding the national budget may jeopardize future defense spending, but for now, long-term deals should ensure stable employment.

Regional companies already take advantage of this clusters presence, and may find new opportunities in the future. The region's successful metal product manufacturers can be tapped to craft precision parts for aircraft and other defense or security equipment. As with the biotech cluster, some firms are already doing this.

Agriculture

The agriculture cluster is very diverse, including companies ranging from purely agricultural to manufacturers and wholesalers. Also included are firms that brew beer, make wine, manufacture pesticides, and sell farm equipment. Employment in the cluster ranges from management and supervisory positions, requiring some training or advanced education (beyond high school), to entry level positions that pay little and require no advanced education (some positions do not even require a high school diploma).

Following statewide trends, the region's agricultural sector is currently small and not export oriented. Statewide reports have indicated that efforts to increase exports and better market the state's products are needed². The market for food products is growing worldwide, increasing opportunities for the region's agricultural cluster to thrive. Domestic consumption patterns, including agritourism and the local food movement, should fit with the region's current stock of agricultural production firms.

Projections of employment are a mixed bag for this cluster. Farm employment is projected to decline slightly, but offer ample openings due to turnover. Food processing is projected to grow at a relatively fast rate, but will mostly employ lower-wage workers. As noted by a recent report, the agricultural industry's impacts extend beyond direct employment, supporting employment in other sectors such as tourism and food services³.

Agricultural land also has benefits that are not easily quantified in economic terms. Farmland, as undeveloped land provides an alternative to the development we encounter on a daily basis. This undeveloped land, with its connection to Connecticut's past, makes the region a more attractive place to visit and thus increases tourism revenue. Farmland also provides numerous ecosystem benefits, such as animal habitat and flood control.

² The University of Connecticut Department of Agricultural and Resource Economics and The Connecticut Center for Economic Analysis, "Economic Impacts of Connecticut's Agricultural Industry."

³ Ibid.

Introduction

The recession that began in 2007 gave new impetus for Central Connecticut to work in a strategic and thoughtful way to improve its economy. Unemployment hovers above 9% and job growth is essentially flat. While these conditions are partially due to broader, national economic trends, part of it is born of the region. This region, and the State of Connecticut as a whole, has long labored under stagnant economic conditions. A prolonged national (even worldwide) recession could perpetuate and even worsen that stagnation.

The situation is urgent but we cannot act haphazardly. The recession (as well as long-range systemic changes) has left municipalities and regions with fewer resources. These limited resources must be used in a strategic and targeted fashion. They must be used to leverage broad-based partnerships with non-profits, government agencies, and private sector actors.

This report lays the groundwork for that strategic action. The first section examines the overall economic situation in Central Connecticut. It looks at broad sectors of the economy to determine which ones are creating jobs and which ones are losing them. The next section examines the cluster based efforts being deployed in adjacent regions and throughout the State. The final section examines the available data and literature to identify the region's best cluster prospects.

Two sets of clusters are then identified. The first set includes three clusters that are targeted for future growth in the region. These are clusters that have strong national or regional prospects. The second set includes three clusters that are important to the region, either because of their existing presence, or because of important benefits they provide. The goals and objectives of the region's CEDS should include strategies designed to improve the prospects of each of these clusters.

Industry Clusters

Rather than focusing on specific companies or industries, the EDA encourages regions to identify and support industry clusters. This concept, most recently championed through the work of Michael Porter, looks at firms that are interconnected, whose work either feeds off of, or supports, the work of other firms. Porter defines a cluster as: "geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a nation or region." A cluster is more than just a geographical concentration of companies that produce the same product. It also includes suppliers to those companies, research institutions that operate in the same field, and companies that produce related goods or services.

There are a number of advantages for firms in a cluster. The first is that they may take advantage of economies of scale. That is, when more companies are buying the same product in the same geographic area, the price tends to lower as shipping costs decrease. Members of clusters can also take advantage of common institutions, such as universities that produce new knowledge and innovation in the field. Firms are also able to take advantage of a common labor pool. Even if two firms are not producing the exact same product, just similar products, or products within the same field, their labor needs are likely to be closely aligned. Finally, firms in clusters, as well as supporting institutions, can take advantage of so-called "tacit knowledge". Knowledge flows more freely in

a confined geographical area when there is a critical mass of related firms. A common business culture can develop which may reduce costs and hassles for firms in the cluster. This benefit is less tangible, but nonetheless important.

Guiding Principles of the Analysis

Before discussing the prospects of each cluster in Central Connecticut, it is important to discuss a few basic principles that underlie the analysis. First, this report should **not be construed as “picking winners”**. The intent is not to choose which firms or industries will be supported and which will be ignored, but is instead to help the region’s leaders more fully evaluate their capital projects and workforce solutions. By better understanding the needs of clusters and how companies within them are interrelated, investments can be deployed in a strategic manner that improves conditions for a broader assortment of firms.

A second and related principle is that investments and targets should be **based on existing strengths and assets**. The region cannot form a cluster out of thin air. We have an existing workforce, an existing economic base, an existing infrastructure base, and an existing set of buildings and sites. It would be imprudent to jettison them in the vain hope of chasing the latest fad. The purpose of our investments should be to expand the reach and depth of our existing assets, to help them grow into new industries and take on new activities.

A third principle is that, despite the need to build on the existing business and workers already in the region, **we should be targeting emerging clusters**. That does not mean that existing companies are to be ignored. For example, nothing is stopping a metal working shop that currently makes springs from transitioning to making parts for medical devices.

The fact is, however, that recent evidence strongly suggests that young companies are the greatest creators of jobs. The traditional view has been that small businesses produce most new jobs, and while this is incidentally true, other factors are at play. A recent paper from the Kauffman Foundation, using a relatively new database from the U.S. Census Bureau, shows that nearly all net job growth in the U.S. from 1980 to 2005 came from firms that were less than five years old⁴. While established firms do represent the lion’s share of total jobs in the economy, they do not tend to create a large number of net new jobs. Some anecdotal evidence also suggests that many of the new jobs established firms do create come from acquiring young firms. Of course, it should be noted that young firms experience considerable “churn”, with most failing within a few years. Still, it is those that survive that are the engines of job creation.

⁴ D. Stangler and R. E Litan, “Where Will the Jobs Come From?,” *Kauffman Foundation Research Series: Firm Foundation and Economic Growth* 1 (2009): 1-17.

Economic Conditions in Central Connecticut⁵

Before delving into an analysis of industry cluster and their presence in Central Connecticut, it is important to look at the broader economic situation in the region. Since the region's 2004 CEDS was completed, the economic development climate has changed dramatically. The following is a review of current economic conditions.

Business Activity

Despite the impact that the great recession has had on business activity, Department of Labor data show an increase in the number of private employers in the region. Between 2004 and 2009, the number of employers increased by 2.9%. During the same period, the number of private employers grew by 7.1% nationwide, over three times the regional rate. On the other hand, Connecticut only added 2.5% more employers.

As with residential properties, commercial property vacancy rates have also been increasing. Using USPS vacancy data, vacancy rates for each town and the region were calculated (See *Table 1*). In general, the business vacancy rate has increased since 2007 (the earliest year for which data is available), though only from 10.7% to 10.8%. The national rate was significantly higher at 11%, and also grew faster from its 2007 rate of 8.9%. Burlington had the lowest rate, 3.1% in the region. Only New Britain and Plainville had rates higher than the national average: 14.1% and 12.2% respectively. Every town and city experienced an increase in their rate, except for New Britain, which dropped from 15.1% to 14.1% and Burlington, which was at 11.1% in 2007 and 3.1% in 2010⁶.

Table 1. Business Vacancy Rates: Percentage of Establishments (2007 & 2010)

	2007	2010
Berlin	6.3%	5.4%
Bristol	10.3%	10.3%
Burlington	11.1%	3.1%
New Britain	15.1%	14.1%
Plainville	10.2%	12.2%
Plymouth	7.4%	9.1%
Southington	9.2%	10.7%
Region	10.7%	10.8%
Connecticut	8.7%	11.6%
United States	8.9%	11.0%

Source: U.S. Department of Housing and Urban Development, 2007; U.S. Department of Housing and Urban Development, 2010

Retail Sales

Since the last CEDS was completed in 2004, both the number of retail establishments and the value of retail sales declined. The number of establishments declined 10.7% between 2007 and 2010 (See *Table 2*). This was a slightly larger decline than was experienced by Connecticut: 10.12%. Overall, retail sales in the region declined 6% while increasing 17% statewide.

Again, considerable variation exists between the different towns. Berlin experienced a relatively small decline in establishments (5.21%) while New Britain lost 12.57% its retail establish-

⁵ Much of this information was present in the *Draft Regional Profile*. It is duplicated here for convenience.

⁶ The number of business addresses recorded by the USPS in Burlington is incredibly low, making even small changes appear to be much more significant.

ments. The value of sales declined in every municipality, except Plainville (17.5% increase) and Plymouth (1.4% increase). The largest decline occurred in Burlington, where retail sales declined by 32.6%, though this could be due to reporting irregularities⁷.

The amount of sales and use tax due also increased in the region, but at a slower rate than it did statewide. The region's taxes due declined by 2.5% while the state declined by 2.8%. Both Berlin and Southington saw taxes due increase, by 3.7% and 3.1% respectively.

Trade Names

Trade name filings have fallen considerably since the last CEDS

was completed⁸. In 2003 there were 434 filings region-wide, growing to 483 in 2004 and to a high of 560 in 2005. The growth rate was 11.3% in 2004 and 15.9% in 2005. The most recently available data show just 395 filings in 2010, for an overall decrease in volume of 9%.

Table 2. Change in Retail Sales (2004 to 2009)

	Central Connecticut	Connecticut
2004 to 2005		
Number of Taxpayers	-4.8%	-4.3%
Retail Sales of Goods	-17.5%	-0.4%
Sales and Use Tax Due	-11.7%	-9.0%
2005 to 2006		
Number of Taxpayers	-0.8%	-0.2%
Retail Sales of Goods	-3.0%	-1.6%
Sales and Use Tax Due	-4.9%	-1.8%
2006 to 2007		
Number of Taxpayers	-0.2%	0.2%
Retail Sales of Goods	-15.5%	3.8%
Sales and Use Tax Due	-2.5%	2.4%
2007 to 2008		
Number of Taxpayers	-2.8%	-3.0%
Retail Sales of Goods	29.3%	5.4%
Sales and Use Tax Due	10.6%	3.1%
2008 to 2009		
Number of Taxpayers	-2.3%	-3.2%
Retail Sales of Goods	7.5%	9.1%
Sales and Use Tax Due	7.7%	3.1%
Total Change		
Number of Taxpayers	-10.4%	-10.1%
Retail Sales of Goods	-6.0%	17%
Sales and Use Tax Due	-2.5%	-2.8%

Findings

- The business environment has cooled considerably, a result of the great recession.
- Although the number of sales and use tax payers has decreased, the value of sales has increased, resulting in increased tax receipts.
- The number of business filings has also decreased by 9% since 2003.
- One positive indicator is that the number of private employers increased between 2004 and 2009 by 2.9%.

Regional Employment

While it is clear that the business environment has cooled overall, each sector of the economy has performed differently. This section looks at the performances of individual industry sectors. It

⁷ Many companies with multiple establishments file from a single location, which can dramatically skew results.

⁸ Data is currently only available for Berlin, Bristol, Burlington, and Southington

Table 3. Industries as a Percentage of Total Employment (2009)

	Region	National	State	Hartford LMA
Agric., Forestry, Fishing and Hunting	0.0%	0.9%	0.3%	0%
Mining	0.0%	0.5%	0.0%	0%
Utilities	0.3%	0.0%	0.5%	0%
Construction	4.9%	4.8%	4.0%	4%
Manufacturing	14.9%	9.2%	12.5%	13%
Wholesale Trade	3.2%	4.3%	4.7%	4%
Retail Trade	11.1%	11.4%	13.0%	12%
Transportation and Warehousing	1.2%	3.9%	2.9%	3%
Information	4.6%	2.3%	2.6%	3%
Finance and Insurance	2.7%	4.4%	8.6%	13%
Real Estate and Rental and Leasing	0.7%	1.6%	1.4%	1%
Professional, Scientific, and Technical Services	2.5%	5.9%	6.4%	6%
Management of Companies and Enterprises	0.3%	1.4%	2.0%	2%
Administrative and Waste Management	3.7%	5.6%	5.5%	5%
Educational Services	0.4%	9.5%	3.8%	3%
Health Care and Social Assistance	17.2%	13.8%	17.8%	18%
Arts, Entertainment, and Recreation	0.6%	1.8%	1.7%	1%
Accommodation and Food Services	6.1%	8.7%	8.0%	8%
Other Services (except Public Administration)	3.5%	3.4%	4.1%	4%
Unclassifiable/unknown industry	0.0%	0.1%	0.0%	0%

Source: Connecticut Department of Labor, 2010

provides an analysis of the relative importance of each sector to the region's economy. It also analyzes the performance of these sectors in relation to the national economy.

Despite the economic downturn, the region has actually gained private sector jobs since 2004. Total private sector employment grew by 1.4% between 2004 and 2009, an addition of 1,141 jobs. During that same period national employment declined by 0.5% and State employment declined by 2.1%.

Regional employment was concentrated in three sectors (see *Table 3*): *Manufacturing*; *Retail Trade*; and *Health Care and Social Assistance*. *Manufacturing* accounted for 14.9% of employment in 2009. *Health Care and Social Assistance* was the second largest concentration at 17.2%; *Retail Trade* was the third largest at 11.1%. These three sectors were also the largest sectors for the state, though the region's employment base was more dependent on *Manufacturing* (12.5% for the state) and *Health Care and Social Assistance* (just 17.8% for the state). The region lagged the state in *Finance and Insurance* employment: 8.6% of state employment was concentrated in this sector versus 2.7% of regional employment. Other notable concentrations included *Information*, *Construction*, and *Accommodation and Food Services*.

Economic Base

The economic base of a region is made up of industries that are more heavily concentrated in that region than they are in some other reference area, such as the state or the nation. Those industries that employ a disproportionately large number of employees are assumed to be producing more than is required for local consumption, and are thus exporting the excess. The theory is that it is the economic (or export) base of a region that drives growth, as it is these industries that bring in outside money.

A crude way of determining which industries are in the base is to calculate location quotients (LQ). The LQ is determined by comparing the percentage of an area's total employment that is made up by a particular industry, to the percentage of total employment in a reference area (usually the state or nation) that is made up by a particular industry. If the LQ is below 1.0, the region is assumed to be a net importer of that industry's goods. If it is around 1.0, the industry is assumed to be producing just enough for local consumption (that is, the region and the reference region have roughly equal employment in the industry). Values much greater than 1.0 (usually at least 1.10) indicate that the region is exporting the product of that industry⁹.

Based on 2009 data (see *Table 4*), in Central Connecticut, the economic base was made of the following industries: *Construction, Manufacturing, Retail Trade, Information, Health Care and Social Assistance, and Other Services*. In general, the economic base of Central Connecticut has been stable since the last CEDS was completed. The one exception is *Information*. This sector showed an LQ of 1.3 against the nation in 2004; that number jumped to 1.99 in 2009. This result is almost entirely attributable to the presence of ESPN in Bristol, which accounted for more than 90% of the region's employment in this sector. Bristol's LQ for this sector was 7.63 (not shown).

LQs can also reveal industries that are underrepresented, indicating that certain needs are being met outside of the region. For example, *Arts, Entertainment, and Recreation* only had an LQ of 0.33. *Management of Companies and Enterprises* was very low as well, at just 0.23, indicating a dearth of corporate offices. Finally, *Transportation and Warehousing* was only 0.30; against the state it was 0.41 and against the Hartford LMA it was 0.47. All of these were decreases from 2004¹⁰.

Subsector Analysis

The data reported above was only available for broad industry sectors (2-digit level NAICS). To really get a feel for a region's economy, more fine grained data is needed. Unfortunately, the most recent data available at a finer grain is from the 2007 Economic Census, and even then most of the data was suppressed. A few concentrations could be identified though. For example, nearly half of all manufacturing employment in the region was in the *Fabricated Metal Product Manufacturing* subsector. In fact, it was 6.47 times as concentrated in the regional economy as it was nationally.

⁹ Certain industries, like *Construction*, are assumed to be local serving only, while others, such as tourism related industries, are assumed to be exporters (that is, they serve a non-local market).

¹⁰ *Educational Services* had a very low LQ that was in part a result of government employees (like public school teachers) not being included in the data.

Within the *Health Care and Social Assistance* sector, both *Hospitals* and *Nursing and residential care facilities* showed high concentrations: 3.1 and 2.6 respectively.

As would be expected, another large concentration was found in the *Broadcasting* subsector of *Information*. That industry had an LQ of 14.6 against the nation. It should be noted, however, that only one employer was reported in that subsector (ESPN).

Within the *Retail Trade* sector, some interesting results were found. The region performed well in *Food and beverage stores* (1.7), *Health and personal care stores* (1.8), and *Motor vehicle and parts dealers* (1.4). On the other hand, *Electronics and appliance stores* were poorly represented at 0.5, as were *Clothing and clothing accessories stores* (0.6). *Sporting goods, hobby, book, and music stores* came in at just 0.7, which was the same as *General merchandise stores*.

Table 4. LQs for Central Connecticut vs the nation, state, and Hartford Labor Market Area (2009)

Industry Sector	vs National		vs State		vs Hartford LMA	
	2004	2009	2004	2009	2004	2009
Utilities	n/a	n/a	0.00	0.55	0.00	0.83
Construction	1.06	1.03	1.24	1.24	1.25	1.22
Manufacturing	1.61	1.62	1.27	1.19	1.26	1.15
Wholesale Trade	0.77	0.74	0.72	0.68	0.80	0.77
Retail Trade	1.02	0.98	0.87	0.85	0.96	0.95
Transportation and Warehousing	0.40	0.30	0.58	0.41	0.68	0.47
Information	1.30	1.99	1.17	1.79	1.30	1.76
Finance and Insurance	0.40	0.61	0.21	0.31	0.13	0.21
Real Estate and Rental and Leasing	0.36	0.43	0.41	0.48	0.49	0.52
Professional, Scientific, and Technical Services	0.54	0.42	0.46	0.39	0.48	0.40
Management of Companies and Enterprises	0.40	0.23	0.29	0.16	0.41	0.16
Administrative and Waste Management	0.65	0.65	0.66	0.66	0.73	0.70
Educational Services	0.04	0.04	0.12	0.09	0.17	0.14
Health Care and Social Assistance	1.31	1.24	1.02	0.97	0.99	0.94
Arts, Entertainment, and Recreation	0.33	0.33	0.32	0.34	0.36	0.41
Accommodation and Food Services	0.71	0.70	0.79	0.75	0.86	0.81
Other Services (except Public Administration)	1.01	1.02	0.85	0.84	0.90	0.93

Source: Connecticut Department of Labor, 2010; U.S. Bureau of Labor 2010

Shift-Share

Using a technique called shift-share analysis¹¹, the direction that industry sectors are moving in can be seen. While manufacturing was still a relatively important sector in Central Connecticut in

¹¹ Shift-share looks at employment in various industry sectors during two points in time. It compares the changes that occur on a regional scale to those that are happening nationwide and industry wide. This al-

2009, employment continued to fall (see Table 14 in Appendix 1: Detailed Data Tables). In 2004, there were 14,926 people employed in manufacturing; this fell to 12,658 in 2009, a decrease of 15%. Nationally, employment in this sector fell by 17%. This indicates that Central Connecticut's manufacturers have remained relatively strong. In fact, the region was able to hold on to 285 more jobs than would be predicted by national and industry trends.

The region also made significant gains in the *Finance and Insurance* sector. Over 700 jobs were added in this sector, at a time when the industry was contracting nationally. Between 2004 and 2009, Central Connecticut's *Finance and Insurance* sector grew by 50%. The region also saw its *Real Estate and Rental and Leasing* sector grow by 16.7%; nationally this sector shrank by 5.3%.

The *Information* sector has also grown considerably since 2004. Employment was up 42%, a gain of 1,155 jobs. Nationally, this sector contracted by 8.8%; taking national contraction into consideration, the region gained or saved a total of 1,394 jobs in this sector.

The shift-share also revealed a number of weaknesses in the region's economy. A major loss of *Professional, Scientific, and Technical Services* jobs was experienced. Employment in this sector fell 12.5% regionally, but it grew 10.2% nationally. Not only did the region experience decline, but it also missed out on growth. Those two forces combined to deprive the region of 546 jobs in this sector. regional growth in *Health Care and Social Assistance*, which was 9.4%, lagged the nation, which grew by 12.7%. If the region had followed national trends, sectoral employment would have grown by another 444 jobs.

Finally, possibly a result of the challenges facing our transportation system, *Transportation and Warehousing* employment fell by 25%. Nationally it only fell by 1.9%. The result was a loss of 308 jobs beyond what national or industry trends would suggest.

Most of these trends are mirrored when the region is compared to the state and the Hartford LMA. The region was weak in *Health Care, Management of Companies and Enterprises, Professional, Scientific, and Technical Services*, and *Transportation and Warehousing*. A notable exception is *Manufacturing*, which was a strength for the region when compared to the nation, but was a weakness when compared to the state and LMA. Employment in this sector dropped by 15.2% in the region, but only by 8.4% in the LMA, and 13.1% in the state.

Establishment Sizes

In 2009, most of the employers in the region had few employees (See Appendix). 50.6% of employers had fewer than five employees. This is comparable to the national average of 54%. Over 90% had fewer than 50 employees. Nationally, 94.6% had fewer than 50 employees. Only 9 employers had more than 500 employees. It should be noted that many of these employers are branch offices of larger companies, so they are not necessarily "small businesses"¹².

lows us to determine how much of a given industry's growth or decline, in a given region, is attributable to general national trends, specific industry trends, and the character of the local economy.

¹² The definition of a small business used by the U.S. Small Business Association varies by industry, but generally includes businesses with fewer than 500 employees (100 or fewer for wholesale companies).

Table 5. Top 10 Employers in the Region by Number of Employees

Company	Municipality	Industry	Employee Range
ESPN Inc.	Bristol	Television Stations & Broadcasting	1,000-4,999
New Britain General Hospital	New Britain	Hospitals	1,000-4,999
Lake Compounce	Bristol	Amusement & Theme Parks	1,000-4,999
Bristol Hospital	Bristol	Hospitals	1,000-4,999
Central Connecticut State University	New Britain	Schools-Universities & Colleges	500-999
Hospital for Special Care	New Britain	Hospitals	500-999
Nicard Enterprises	Plymouth	Bolts, Nuts, Screws, Rivets/Washers (Mfrs)	500-999
GE Consumer and Industrial	Plainville	Electric Equipment & Supplies-Wholesale	500-999
Manafort Brothers Inc.	Plainville	Demolition Contractors	500-999
Hartford	Southington	Insurance	500-999

Source: Connecticut Department of Labor

The sizes of employers varied depending on the sector that the business was in. Real Estate and Rental Leasing employers tended to be smaller than average. Over 66% of them had fewer than five employees. In fact, no business in the real estate sector was larger than 50 employees. Similarly, nearly 67% of Professional, Scientific, and Technical Services businesses had fewer than five employees.

A few sectors tended to have larger employers. Only 31.4% of manufacturers had fewer than five employees but 13% had more than 50 employees; Just 5.9% of all employers were larger than 50 employees. Almost 17% of businesses in *Management of Companies and Enterprises* and *Educational Services* had more than 50 employees.

The 10 largest employers in the region can be found in Table 5. The employers in this list come from an interesting array of industries. There are three hospitals (led by New Britain General), a cable broadcasting company (ESPN), an amusement park (Lake Compounce), a manufacturer, a wholesaler of electric equipment, a demolition company, and an insurance company. This list also represents a wide geographic area, spanning five of the seven municipalities in the region.

Findings

- The regional economy lost jobs at a slightly faster rate (0.2%) than the national economy.
- Retail in general was a slight positive for the region, but only in certain subsectors. regional residents can fulfill their needs for everyday purchases such as food and health care products, but most other retail operations are underrepresented, such as clothing, books, sporting goods, electronics, and other general merchandise.
- While *Accommodation and food service* as a whole was not a regional strength, this sector appears to have been weighted down by the *Accommodation* subsector, which had an LQ of just 0.3. The other subsector, *Food services and drinking establishments* had an LQ of 1.2.

- Despite some successes in transitioning to the new economy, the region was still heavily dependent on old economy jobs. *Manufacturing*, for example, is nearly twice as concentrated in the region as it is in the nation; it is 1.5 times as concentrated as it is in the state.
- While manufacturing is declining (both regionally and nationally), regional manufacturers actually performed better than the national average.
- Most employer establishments in the region had a small number of employees.

Wages

While wages have grown in the region since 2004, they actually decreased during the most recent year for which data is available, and when adjusted for inflation they were flat. The average wage was \$42,217 in 2004 and rose to \$48,129 in 2009. This was an increase of 14.0%, nearly identical to the national increase of 14.2%. When adjusted for inflation (using the Consumer Price Index), the 2004 wage was the equivalent of \$47,947 in 2009 dollars. So, the inflation adjusted increase in the average wage was just 0.4%.

As the regional economy transitions from being concentrated in production to being concentrated in services, it will result in a change in regional wealth. For example, the average manufacturing job in the region paid over \$58,000 in 2009 (see Table 6). Good news for the nearly 15% of the workforce in that industry. The largest industry in 2009, however, was *Health Care and Social Assistance*, which only paid an average of \$45,000 per employee. Another large concentration, though one that is shrinking, is *Retail Trade*, where the average employee made just \$27,000.

Other high paying sectors showed mixed results for the region. A bright spot for wage

Table 6. Wages by Industry Sector and Percent of Regional Employment

Sector	% of Total Employment	Average Wage
All Industries	100%	\$48,129
Agric., Forestry, Fishing and Hunting	*	*
Mining	*	*
Utilities	0.3%	\$92,463
Construction	4.9%	\$58,164
Manufacturing	14.9%	\$57,163
Wholesale Trade	3.2%	\$52,947
Retail Trade	11.1%	\$27,548
Transportation and Warehousing	1.2%	\$32,684
Information	4.6%	\$89,979
Finance and Insurance	2.7%	\$60,638
Real Estate and Rental and Leasing	0.7%	\$36,407
Professional, Scientific, and Technical Services	2.5%	\$60,875
Management of Companies and Enterprises	0.3%	\$116,859
Administrative and Waste Management	3.7%	\$33,792
Educational Services	0.4%	\$26,685
Health Care and Social Assistance	17.2%	\$45,646
Arts, Entertainment, and Recreation	0.6%	\$16,875
Accommodation and Food Services	6.1%	\$15,317
Other Services (except Public Administration)	3.5%	\$24,933

Source: Connecticut Department of Labor, "Covered Employment and Wages by Industry"

growth is the *Information* sector, which showed impressive growth in the region and paid an average of almost \$90,000 a year. Another growing sector with high wages is *Finance and Insurance*, which paid over \$60,000 per employee and makes up 3.4% of employment. On the other hand, the region is losing employment in *Professional, Scientific, and Technical Services*, which is also a high paying industry at over \$60,000 per employee.

Findings

- The region is losing high paying manufacturing jobs and gaining lower paying health care services jobs.
- *Information* and *Finance and Insurance* provide high paying jobs and are growing in the region.
 - They are both still relatively small parts of the regional economy
- Wages increases have followed national trends, but when adjusted for inflation, wages have been essentially flat.

Unemployment

Like the rest of the country, the recent recession resulted in a large increase in unemployment for the region (see **Error! Reference source not found.**). In January of 2007 the unemployment rate was 5.9%¹³ but had dropped to 4.8% by October of that year, just 0.1% higher than the national rate. One year later the rate was 6.0% and a year after that it was 9.2%. The unemployment rate hit a peak in January of 2010 when it went as high as 11.4%. The national rate peaked as well, but at a lower rate of 10.6% (the northeast is more much susceptible to seasonal employment variations due to winter weather). Up until December of 2010, the regional rate and the national rate were similar. In November the region's rate was 9.8% and the nation's was 9.6%. Once again, winter is negatively affecting the region, causing the unemployment rate to rise to 10.8% in February 2011 while the national rate declined to 9.5% (not seasonally adjusted and 8.9% seasonally adjusted).

Connecticut has seen similar trends, but at an overall lower rate of unemployment. Back in November the state's rate was one point lower than the region's, at 8.8%. Currently, the state's rate is 9.6%. The Hartford Labor Market Area has followed the state trend.

Findings

- The region's labor force participation rate was higher than average and has been growing.
- Region-wide, unemployment is lower than the national average but slightly higher than the state average and significantly higher than the MSA average.
- The region's unemployment has fluctuated to a greater degree than the national rate.

¹³ Unemployment rates for the region are not seasonally adjusted. In northern state especially, unemployment tends to be much higher in the winter months.

Clusters in Surrounding Regions

To determine which clusters show the most promising prospects for growth, four levels of analysis were consulted. First, a broad analysis of generic nationally identified clusters was performed on Hartford County. A list of existing clusters in Connecticut was then consulted and compared to the generic cluster analysis. Connecticut recognized clusters that best matched the generic clusters that showed strong growth in Hartford County were then compared to a list of clusters identified as targets by the Metro Hartford Alliance. Finally, after consulting industry reports and employment statistics from *Reference USA*, a list of targets was chosen.

National Clusters

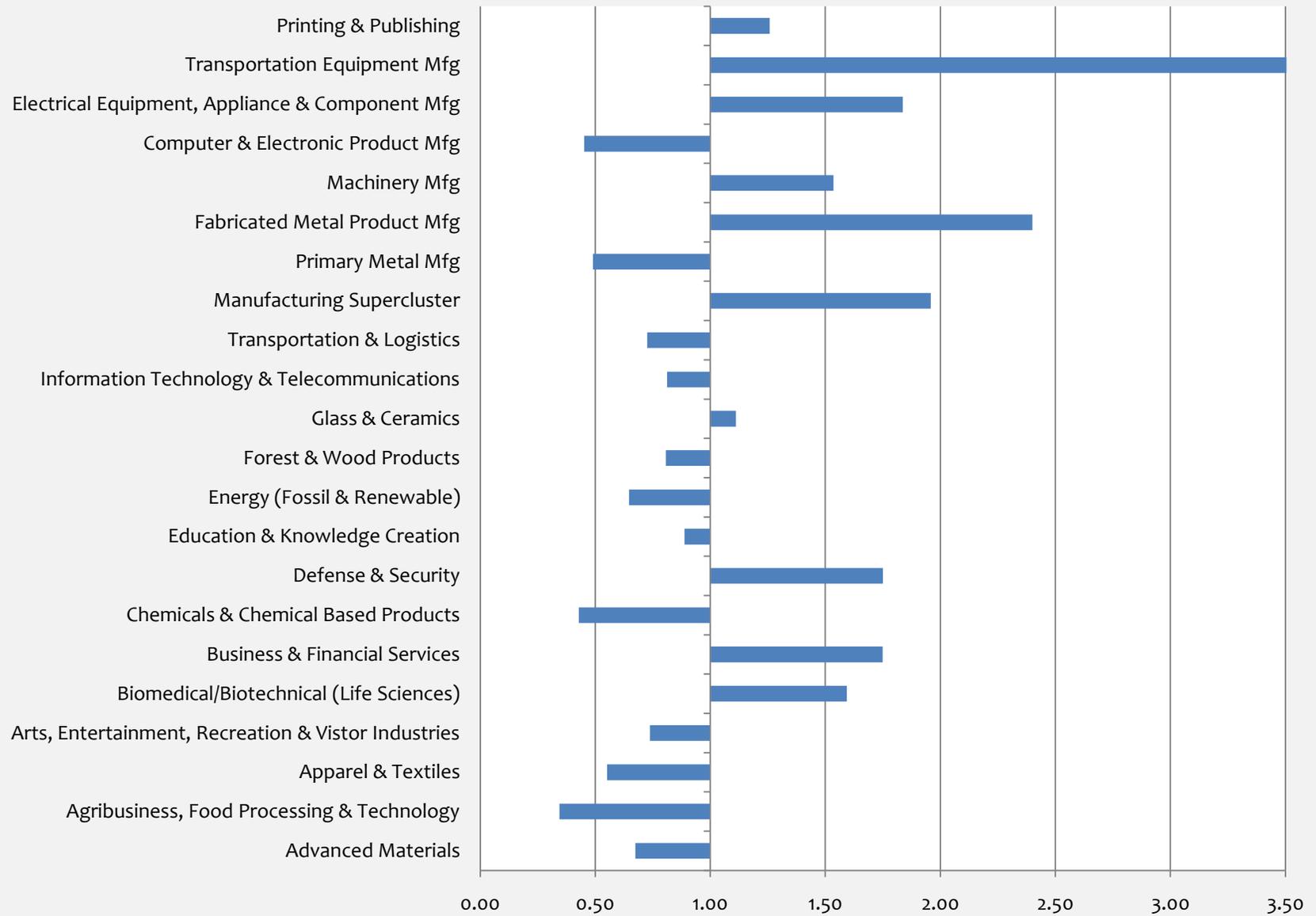
Using data from Purdue University's Purdue Center for Regional Development, a cluster analysis of Hartford County was performed. The clusters used in this analysis use nationwide definitions. The purpose is to get an updated picture of which clusters are growing and which are declining in the broader region.

Hartford County has employment concentrations in 10 clusters, though a few of them overlap. The location quotients for each cluster are listed in Figure 2. The largest concentration was found in *Transportation Manufacturing* (a LQ of 3.5), which shares firms with the *Defense and Security* cluster (LQ of 1.75). Also in the manufacturing "supercluster" is *Fabricated Metal Product Manufacturing*, which scored a LQ of 2.4. Non-manufacturing clusters included *Biomedical/Biotech* at 1.59, *Business & Financial Services* at 1.75, and *Printing and Publishing* at 1.26.

A strong regional advantage was only detected in some of the clusters using shift-share techniques (see Table 15). *Printing & Publishing*, while experiencing a slight decline in employment, performed much better at the county level than at the national level (-0.9% versus -10.9%). *Transportation Equipment Manufacturing* was a similar story, losing 4.9% of its employment countywide but losing nearly 23% nationwide. Hartford County performed much closer to the national average in *Fabricated Metal Products* (-7.5% and -12.2% respectively). The only cluster to have both a regional advantage and positive employment growth was *Defense and Security*, which grew by 7.2% in the county and 1.6% nationwide.

Two clusters had positive employment growth in the county but lagged the nation. *Biomedical/Biotechnology* grew by 9.7% countywide but grew by 13.5% nationwide. *Business & Financial Services* grew by just 0.5% countywide and 2.4% nationwide.

Figure 1. Hartford County Location Quotients for all National clusters



Connecticut's Clusters

Connecticut has supported the cluster concept since at least 1998 when a task force of business leaders endeavored to identify an initial list of six industry clusters. The Industry Cluster Initiative was soon started and provided seed money to support identified clusters. There are now nine clusters in the state. They are: *aerospace, agriculture, bioscience, insurance and financial services, maritime, metal manufacturing, plastics, software and information technology, and tourism*¹⁴.

To support these clusters, the State has made considerable investments over the years. Since 1997 the Department of Economic and Community Development has invested \$17 million in the State's Industry Cluster Initiative, leveraging \$23 million in federal funds and \$8 million in private money. Connecticut Innovations also invested money into the bioscience cluster to the tune of \$33 million, leveraging \$40 million in private investment¹⁵.

Hartford's Clusters

In 2005 the Metro Hartford Alliance completed their CEDS, and in the process identified a number of target industry clusters. Given Central Connecticut's close proximity to Hartford, and the numerous ties between the two areas, it makes sense to coordinate with their efforts to some degree.

The Metro Hartford CEDS identified five industry clusters that were already strong in the region. They were: *Financial Services, Aerospace and Defense, Transportation Services, Industrial Supplies, and Health Services*. Moving beyond what is already established, the researchers looked at national trends, to identify which clusters are growing and which are declining. Based on this analysis, they determined that *Material Supplies, Chemicals & Plastics, Higher Education & Research, Mass Media, and Wholesale* clusters were "dislocating", meaning that they are undergoing fundamental changes in their factors of growth.

The Metro Hartford Alliance then looked at the region's strengths and weaknesses. Strengths included: strategic location, access to major interstates, access to an international airport, a high quality of life, a well-educated workforce, an abundance of nearby colleges and universities, and strong corporate presence. Weaknesses included: high cost of doing business (the Hartford MSA, which most of Central Connecticut is part of, was ranked 119th out of 150 metro areas (higher is bad) based on the cost of doing business), poor image of the City of Hartford, lack of coordinated entrepreneurial support, lack of state incentives, lack of young professional workforce, and inadequate rail access.

Based on their analysis, they identified six target industry niches within larger clusters. They were: *Advanced Security & Defense Manufacturing, Financial Services, Biotechnology, Logistics & Distribution, Clean Energy, Health Services*.

¹⁴ Nicholas Jolly, with Connecticut Department of Labor, "Connecticut's industry clusters" (Connecticut Department of Labor, July 2005).

¹⁵ Department of Economic and Community Development, "Connecticut Economic Strategic Plan", September 2009.

Cluster Prospects

This analysis has revealed that companies in Central Connecticut participate in a variety of industry clusters. Metal Manufacturing remains strong and the region's proximity to Hartford allows some spillover from that region's insurance cluster and aerospace/defense cluster. The point of this exercise, however, is not to determine which industries are strong, but to determine which ones are targets for growth and which should simply be supported.

Clusters which are not projected to show strong growth are still worth maintaining. Central Connecticut, as a region at the crossroads between other regions, contains companies that are part of a diverse array of clusters. Even though the entire cluster is not located within the region, those companies may still access the benefits of clustering. While we must focus on efforts on those clusters which are most likely to produce new jobs and wealth in the region, we should not turn a blind eye to others.

Target Clusters

Based on the data analysis presented above, and a review of relevant literature, six clusters were identified as targets. The two biggest opportunities for growth in Central Connecticut would appear to be *Bioscience/Biotechnology* and *Health Services*; the *Printing & Publishing (Broadcasting)* cluster was identified as a good candidate for growth and further study. A second set of three clusters was also identified. These three clusters already have a significant presence (*Metal Manufacturing*), are linked to important statewide clusters (*Aerospace & Defense*) or provide essential regional benefits (*Agriculture*). This second set may not represent significant future growth, but should be maintained to preserve the overall health of the region's economy.

The following sections give a brief overview of each identified cluster. The region's presence in each cluster is analyzed to the extent allowed by available data. The region's strengths and weaknesses are discussed, and finally, an explanation of findings is provided.

Bioscience

Bioscience can range from the genetic engineering of animals and agriculture, to the creation of new drugs, and to the construction of medical devices. It involves basic research at institutions such as universities, product research by firms, the manufacture of devices or chemicals, and crafting pieces of devices (See Table 8)¹⁶. Workforce requirements range from highly skilled laborers to highly educated researchers.

¹⁶ Following a report in the May 2007 issue of *The Connecticut Economic Digest*, we omit drug stores from the definition of the bioscience cluster.

Table 7. Proposed Target Clusters

High Growth Clusters

Biomedical/Biotechnical

Health Services

Printing & Publishing (Broadcasting)

Clusters With Regional Importance

Aerospace & Defense Manufacturing

Fabricated Metal Product Manufacturing

Agriculture

The bioscience sector is growing quickly at the national level. In 2008 there were 1.42 million people working in the sector. Since 2001 employment has grown 15.8%, a rate that was nearly five times the national average. The fastest growth was seen in *Research, Testing, & Medical Laboratories*, which added 46.1% more employees between 2001 and 2008. More moderate growth was seen in other parts of the sector, such as *Medical Devices* (2% growth), *Drugs & Pharmaceuticals* (2.3% growth) and *Agricultural Feedstock & Chemicals* (1.9% growth). Even during the recession the sector grew by 1.4% (2007 to 2008). That growth is projected to continue through 2016, growing by 1.5% per year¹⁷.

Not only were jobs growing, but they also provided high wages. In 2008 the average wage sector-wide was \$77,600. Jobs in *Medical devices & equipment* earned an average of over \$63,000 a year in 2008. Pharmaceuticals production paid the highest wage at an average of \$93,000¹⁸.

Regional Presence

Central Connecticut has been targeting this cluster for many years, and those efforts are beginning to pay off. The region's *bioscience* cluster, medical devices in particular, grew considerably between 2004 and 2009 (see Table 16 in the appendices). In 2004 there were just 26 companies in this cluster. That number grew to 36 in 2009. Current direct employment is estimated at 605 employees. The average size of those companies also grew, though most were still very small, with none of the companies in the cluster having more than 250 employees.

Half of the region's companies in this cluster are in the production sector. In 2009 there were 18 companies in this region manufacturing goods related to bioscience. This represents a significant increase from 2004 when just 14 firms were in this sector.

Strengths

It has become a cliché to say that a region should target biotech or bioscience. A Brookings's Institute survey found that 83% of the local and state economic development agencies surveyed had chosen biotechnology as a target¹⁹. There are, however, many niches within the broader biotech-

Table 8. Bioscience Cluster Composition

NAICS	Description
3254	Pharmaceutical and Medicine Manufacturing
334510	Electro-medical and Electro-therapeutic Apparatus Manufacturing
334516	Analytical Laboratory Instrument Manufacturing
334517	Irradiation Apparatus Manufacturing
3391	Medical Equipment and Supplies Manufacturing
54138	Testing Laboratories (includes labs not involved in bioscience)
54171	Research and Development in the Physical, Engineering and Life Sciences
6215	Medical and Diagnostic Laboratories

Source: Connecticut Department of Labor, "Connecticut's Industry Clusters (2005)"

¹⁷ Battelle Technology Partnership Practice, "Battelle/BIO State Bioscience Initiatives: Connecticut Profile" (Biotechnology Industry Organization, May 2010).

¹⁸ J. Cortright, H. Mayer, and Brookings Institution. Center on Urban and Metropolitan Policy, *Signs of life: The growth of biotechnology centers in the US* (Center on Urban and Metropolitan Policy, the Brookings Institution, 2002).

¹⁹ Casey R. Pickett and Matthew Nemerson, "The Connecticut Competitiveness Agenda Project" (Connecticut Technology Council, 2010).

nology/bioscience cluster. A recent report suggests that medical devices is the most likely target for Central Connecticut. The State of Connecticut was listed as one of 14 states that was specialized in medical device manufacturing²⁰.

Medical device manufacturing is a good target for many reasons. For starters, it is manufacturing, which the region excels at. As mentioned elsewhere, between 2004 and 2009, manufacturing jobs declined in the U.S. by 17%; in Central Connecticut they only declined by 15%, indicating that the region enjoys an advantage. This is probably in part due to Connecticut's higher than average productivity rates.

It also builds on the region's existing skill-sets. While manufacturing jobs in general are declining, those skills are still with us. Finding new outlets for them is an important way to build on our assets while expanding economic opportunity. Anecdotal evidence and an examination of firm profiles in the ReferenceUSA database show that many machine shops in the region are already producing parts for medical devices. It may not be their primary economic activity, but it is an important source of income.

Weaknesses

While the medical devices sector of the bioscience cluster is a good target, there are some challenges. The first is that, while the region enjoys proximity to the UConn Health Center in Farmington, there are some indications that this facility could do a better job at meeting the needs of industry. A recent survey of industry R&D managers revealed that, while being located near high quality research personnel was important, it was equally important to be located near universities that provide easy collaboration²¹. Another recent survey of CEO's of Connecticut companies revealed that Connecticut universities may not be meeting this need²². In that survey, 62% of respondents mentioned that it was "hard to connect" with university faculty, students, and labs, or that they "do better with other state's universities". They stated that in many cases a professor's enthusiasm and accessibility were more important than their prestige. They cited three main obstacles:

- 1) *the lack of incentives for university researchers to work with technology companies;*
- 2) *the dearth of bridge programs between academia and industry;*
- and 3) *occasional deficiency of expertise in the relevant field.*

The Central Connecticut Region has little control over this, but could be an advocate for greater university-industry partnering.

²⁰ Battelle Technology Partnership Practice, "Battelle/BIO State Bioscience Initiatives" (Biotechnology Industry Organization, May 2010).

²¹ J Thursby and M Thursby, *Here Or There?: A Survey of Factors in Multinational R and D Location--Report to the Government-University-Industry Research Roundtable* (Washington, D.C.: National Academies Press, 2006).

²² Battelle Technology Partnership Practice, "Battelle/BIO State Bioscience Initiatives: Connecticut Profile."

Opportunities

The region has a lot of opportunity to grow its bioscience cluster, medical devices in particular, because of the efforts of surrounding regions. Since the 2004 CEDS, a new bioscience zone was established in areas of New Britain and Bristol that abut the University of Connecticut Medical Center in the town of Farmington (in the Metro Hartford Region); parts of Plainville may soon be added. While primary research functions will initially be focused in Farmington, significant spill-over effects may occur as innovative research is spun-off into new products and companies.

Threats

As the Metro Hartford CEDS points out, a Brookings's Institute study reported that 83% of surveyed localities and states were targeting this cluster. This will result in intense competition for new firms. The good news is that the cluster is actively growing, which means that competition does not necessarily have to result in a "zero-sum game". That is, since new firms are starting up and existing firms are actively expanding, economic development efforts do not have to involve "poaching" from other areas.

According to a recent study of CEOs in Connecticut (including some who recently left the state), Connecticut does not yet offer good value for fast growing companies. The transportation network is not up to par. It is difficult to work with Universities (the study notes that both Yale and UConn receive a much smaller proportion of their research funding from industry than do other universities). It is also not the sort of place that currently attracts the sort of bright young workforce that fast growing companies rely upon. Many of these issues are internal to Central Connecticut as well, but they stem in large part from the external environment of the State. The overall message from the survey was that a high cost environment such as Connecticut can be perfectly conducive to high growth companies, but that Connecticut is not offering enough value relative to its costs.²³

The State of Connecticut's record with the bioscience cluster has not been entirely positive, which threatens the region's prospects with this cluster. As with the State's economy as a whole, the biopharmaceutical industry has shown only moderate growth (1% from 1993 to 2003) and the *bioscience* cluster has shown slightly negative growth (measured by employment). A 2005 analysis of the cluster found that the cluster enjoys good diversity in the State, is highly concentrated, has a solid intellectual property pipeline (patent development) but was small relative to other states, showed limited growth, and had limited availability of venture capital²⁴. Also, while Connecticut is a highly educated state, it ranks low on bioscience related higher education degrees, ranking 31st of 50 states²⁵. Connecticut did rank in the top 20 for venture capital in the bioscience cluster, but the

²³ Pickett and Nemerson, "The Connecticut Competitiveness Agenda Project."

²⁴ ICF Consulting, "Connecticut's Next Generation Competitiveness Initiative: Biopharmaceutical Cluster Strategy" (University of Connecticut Office of Technology Commercialization, August 2005).

²⁵ Institute for Supply Management, "ECONOMIC GROWTH CONTINUES IN 2011," *ISM - Media Releases*, December 7, 2010, <http://www.ism.ws/about/MediaRoom/newsreleasedetail.cfm?ItemNumber=20976>.

only category of venture capital it ranked highly in was in information technology for medical and health services²⁶.

Findings

While it is a cliché in economic development to target bioscience, the recent establishment of the bioscience zone surrounding UConn's Farmington Health Center is a great opportunity for the region. This facility provides incubator space and other resources to help UConn researchers develop their ideas into marketable products. After three years in the incubator, these new firms must “graduate” and move on. Incentives in the bioscience zone (parts of Bristol, New Britain, and, soon, Plainville) make it an attractive place for these firms to land.

Another advantage is that the region's traditional economic base, manufacturing, may be an asset to these companies. Some of the research that comes out of UConn will result in drugs and other products that the region does not excel in, but others will need to be manufactured. Many, including innovative dental products and surgical instruments, must be manufactured out of metal. Information obtained through the *ReferenceUSA* database shows that some metal manufacturing firms in the region are already engaged in such activities. Biomedical devices represent an opportunity to both grow new companies, and help existing companies expand into new products.

The space needs of bioscience startups are also much more in-line with the existing resources of the region. The trend among larger manufacturers and warehousing companies is to create ever larger structures with ever greater freeway access. Many municipalities in the region are largely built out or constrained by environmental impediments. The spatial requirements for developing new biomedical devices or conducting research are much more modest. The wet lab space at UConn's Farmington campus is hardly massive; most rooms are roughly the size of high school science lab. Such facilities could easily be created in the some of the region's unused factories and warehouses.

Health Services

Companies in health services cluster include hospitals, physicians' offices, dentists, and nursing homes. Generally, since these are services that are provided, they require the physical presence of the customer and thus tend to serve local needs. For all but the most complex procedures, customers seek out such services locally. So, to a certain extent, all regions of the country will support a certain number of health services firms.

While it is true that almost every region in the country contains such services, a large enough grouping of them—one that attracts outside money—may still be considered a cluster. Urban centers near largely rural areas will attract outsiders for complicated surgeries. Services such as nursing homes may also cluster and serve a greater than local market.

²⁶ Battelle Technology Partnership Practice, “Battelle/BIO State Bioscience Initiatives.”

The Bureau of Labor Statistics forecasts that the Healthcare industry will generate more than 3.2 million jobs nationwide between 2008 and 2018. This is projected to be the largest increase of any industry. Every occupation within the healthcare industry is projected to increase in employment. The greatest growth is projected to occur for *Physician Assistants* (41.3% growth) and *Secretaries and Administrative Assistants* (26.5%)²⁷. Both of these would be categorized as middle to high skill occupations.

Table 9. Health Services	
NAICS	Description
62	Health Care and Social Assistance
6211	Office of Physicians
6213	Office of Other Health Practitioners
6214	Outpatient Care Centers
6216	Home Health Care Services
623	Nursing and Residential Facilities
Source: Connecticut Department of Labor, "Connecticut's Industry Clusters (2005)"	
NAICS codes in <i>italics</i> are subsets of the code above them	

Regional Presence

Central Connecticut has a very strong health services cluster. According to the 2007 Economic Census, the region's employment in Nursing and residential care facilities is 2.6 times the national average. Employment in hospitals is 3.1 times the national average. As of 2009, the *Health Care and Social Assistance* sector was the largest source of employment in the region, accounting for over 17% of employment.

The region's disproportionately high concentration of employment in this cluster, and disproportionately high number of facilities, implies that it serves more than local needs. Two of the region's largest employers are hospitals (Bristol Hospital and New Britain General); the Hospital of Central Connecticut in Southington is also a major employer. These large institutions, while they do not export a product, do import people and money from surrounding towns.

Strengths

As mentioned above, the region has numerous assets in this cluster. Three large hospitals and large concentrations of employment draw people from around the region. Large elderly care facilities are also regional draws. These institutions provide employment to a wide variety of people in the region, from those with just high school diplomas to physicians and dentists with advanced degrees.

Weaknesses

Overall wages in this cluster are not as high as some other clusters. For example, the average manufacturing job in the region paid over \$58,000 in 2009. The *Health Care and Social Assistance* sector only paid an average of \$45,000 per employee.

An oft reported fact is that as people retire, they are moving back to inner city areas in great numbers, in search of easier to manage housing and environments that are conducive to staying active. The region's deficiencies in public transit will make its downtowns less desirable to mobility

²⁷ Lacey and Wright, Bureau of Labor Statistics, "Occupational employment projections to 2018."

challenged people looking to maintain a more active lifestyle in their retirement. The same is true of the region's amenity poor downtowns.

Opportunities

The United States, Connecticut in particular, is aging. This trend is increasing the market for health services dramatically. By 2016 employment in Health Care and Social Assistance in the Hartford Labor Market Area is projected to increase by 18% over its 2006 level. Employment in Ambulatory Health Care Services is projected to increase by over 19% during the same period. These are expected to be some of the highest growth rates in the labor market area.

New advances in bioscience (See above) are also increasing the supply of services available. This increased supply may have an effect on the demand for such services. New treatments, procedures, and devices are being developed all the time, opening new markets and employment opportunities.

Threats

A major threat is cost and the overall economy. To a certain extent, the growth in health services was made possible by generous retirement packages and health care benefits. Changes in the labor relations (the decline of unions for example) are altering this dynamic. Future retirees and residents in general may have fewer resources with which to pay for health services. Without such benefits, and with fewer finances in general due to national economic trends, we may see a decrease in health care spending²⁸.

Findings

The Health Services cluster is already very large, but there is still potential for growth. This sector grew by 9.4% between 2004 and 2009, a rate that was slower than the national average, but still impressive. The region still enjoys a very high concentration of employment in this sector compared to the nation. The numerous hospitals in the region are a draw to surrounding regions (hospital employment is three times more concentrated in the region than in the nation).

There is also some overlap with the biosciences cluster. Many of the laboratory technician skills that are necessary for hospital employees are also in demand from bioscience companies. There is also ample opportunity for partnerships between area hospitals and bioscience firms.

Average wages in this cluster are relatively low, but it does provide employment for residents with a range of education levels. Entry level jobs are available for those with just high school diplomas while technician jobs may be filled by those with Associate's degrees or certificates. A strong health services cluster also draws individuals with high levels of educational attainment, such as doctors and nurses.

²⁸ Christopher J. Truffer, Sean Keehan, Sheila Smith, Jonathan Cylus, Andrea Sisko, John A. Poisal, Joseph Lizonitz, and M. Kent Clemens, "Health Spending Projections Through 2019: The Recession's Impact Continues", *Health Affairs* 29, no. 3 (2010).

Printing & Publishing

The 2004 CCC CEDS identified a telecommunications cluster in the region. It consisted of firms operating cable and other pay television services and direct mail advertising companies. NAICS based definitions were not included in the CEDS, but at the national level a Printing and Publishing cluster has been identified, encompassing many of the same industries.

Jobs in the broadcasting industry tend to be well paying but are facing increased competition. The jobs in this industry also tend to require high levels of education such as a college degree in a field of study related to broadcasting (journalism for example)²⁹.

The industries within this cluster grew at a very high rate between 2004 and 2008. At the national level, they added 8.2% more jobs than they had in 2004. Growth is projected to increase in the coming years, growing by 7.4% between 2008 and 2018³⁰. In Connecticut, growth in *Broadcasting* is projected to increase by nearly 15% while *Motion Picture and Sound Recording* employment is projected to increase by nearly 30% (from 2006 to 2016). The *Telecommunications* industry is projected to increase by 5%³¹.

Regional Presence

The region's greatest asset in this cluster is ESPN, who is both a producer and broadcaster of sports news content, which reportedly increased its presence in the region significantly (now employing around 4,000 people). The total number of regional businesses in this cluster actually declined, however, from 79 in 2004 to 70 in 2009. Overall, employment is estimated at 4,049 employees. This estimate is low, however, as the database it comes from (*ReferenceUSA*) places ESPN's employment at just 3,000, while recent reports suggest it is closer to 4,000 (after moving some of its non-Connecticut offices to Bristol). If this is the case, then, total cluster employment is probably closer to 5,049.

Table 10. Printing & Publishing Cluster

NAICS	Description
323	Printing and related support activities
325910	Printing ink manufacturing
339950	Sign manufacturing
511	Publishing industries (except Internet)
51511	Radio broadcasting
51521	Cable and other subscription programming
516	Internet publishing and broadcasting
51911	News syndicates
51919	All other information services
54143	Graphic design services
541613	Marketing consulting services
5418	Advertising and related services
54191	Marketing research and public opinion polling
541922	Commercial photography

Source: Center for Regional Development, Indiana Business Research Center, and , Inc., "Unlocking rural competitiveness: The role of regional clusters" (Purdue University, 2007).

²⁹ Bureau of Labor Statistics and U.S. Department of Labor, *Occupational Outlook Handbook 2010-2011*.

³⁰ Lacey and Wright, Bureau of Labor Statistics, "Occupational employment projections to 2018."

³¹ Connecticut Department of Labor Office of Research, "North Central Workforce Investment Area: Industry Projections: 2006-2016."

Strengths

As noted above, the region's greatest strength is the presence of its largest employer: ESPN. This company, a worldwide leader in sports broadcasting, began in Bristol and has recently expanded its presence there. It provides a certain amount of notoriety for the city of Bristol (if not for the region) and is a major source of employment and wealth creation.

Weaknesses

One major broadcaster (regardless of its size and notoriety) is not a cluster. A broader cluster would include suppliers of equipment and content, as well as services utilized by the broadcasting industry. While 15 companies manage the telecommunications infrastructure in the region, and one large employer broadcasts to a worldwide audience, few are engaged in supplying the equipment these companies use. In both 2004 and 2009 there were just three companies producing communications equipment in the region. There has also been a lack of internet companies, information retrieval companies, and radio broadcasters. Anecdotal evidence suggests that a few companies also provide services and content to ESPN. Further study is necessary to assess the strength and extent of the linkages within this cluster.

Opportunities

New communications technology is expanding the reach of broadcasters and forcing companies to purchase new equipment. The switch to high definition television and radio required new equipment. An increased emphasis on Internet content requires both new equipment and new talent. Much of this transition has already been achieved (ESPN already broadcasts in HD) but the possibility of moving to 3D broadcasts could cause new activity in supportive industries.

Threats

The Bureau of Labor Statistics forecasts mediocre growth in the broadcasting industry. The new technology that was cited above as an opportunity is also a liability. New competition is from new media sources (podcasts, blogs, YouTube, etc...) is threatening the industry. The BLS also notes that the industry is experiencing a round of consolidations. They estimate that employment growth will trail other industries.

Demand for telecommunications services and products is expected to increase, but the BLS projects decreased employment. The rate of expansion for the industry has slowed and will continue to slow. While new technologies will be deployed, greater productivity, and the existing infrastructure, will require fewer employers.

Similar trends affect the computer and electronics manufacturing industry (which produces telecommunications equipment). Demand is likely to increase but employment is projected to decline. This is due to productivity increases and the continued off-shoring of production jobs. The exception is high skilled research and development jobs.

Findings

Printing and publishing, with an emphasis on broadcasting, is not yet recognized as a cluster in Connecticut, but it has considerable potential. ESPN employs somewhere around 4,000 people at its Bristol facility and recently relocated another facility to the region. Nearly 70 other companies in the region also participate in printing and publishing activities.

Not only are there a lot of jobs in this cluster, but they are growing and pay well. The Information sector (which encompasses most of this cluster) grew by 42% between 2004 and 2009, far outpacing most other sectors of the economy. The average wage in that sector was also \$90,000, over twice the average regional wage of all sectors combined. Throughout Hartford County, the Printing & Publishing cluster paid an average of nearly \$71,000 per year, far above the region's average wage of \$48,000.

The extent of interconnectedness between these companies is currently unknown. Data limitations prevented a full cluster analysis. Besides which, determining input and output flows between non-production firms is a difficult task. More needs to be known about the potential for this cluster, but it represents one of the region's brightest prospects for growing high paying jobs for highly educated individuals.

Metal Manufacturing

Companies in the metal manufacturing cluster include companies that work with metal in many forms. Firms in the *Primary Metal Manufacturing* sector work with metal ore and refine it. Those in *Fabricated Metal Manufacturing* turn that refined metal into basic metal products such as wire or sheets. Other firms in the cluster go a step further and construct actual products out of the metal such as machines, silverware, or jewelry. Firms servicing these companies, such as warehouse operations are also included.

Table 11. The Metal Manufacturing Cluster

NAICS	Description
331	Primary Metal Manufacturing
332	Fabricated Metal Product Manufacturing
333	Machinery Manufacturing
337124	Metal Household Furniture Manufacturing
33991	Jewelry and Silverware Manufacturing
423510	Metal Service Centers and other Metal Merchant Wholesalers

Source: Connecticut Department of Labor, "Connecticut's Industry Clusters (2005)"

While the economic recession has hurt the manufacturing sector, signs point to near-term improvement. In 2011 16 manufacturing industries are expected to show improvement over 2010, including *Primary Metals* and *Fabricated Metal Products*. Overall, the manufacturing sector is expected to grow by 5.6% (measured by revenue)³².

Employment, on the other hand, is projected to continue to decline nationwide. *Primary Metal Manufacturing* was projected to decline by 1% annually between 2008 and 2018. *Fabricated*

³² T. Alan Lacey and Benjamin Wright, Bureau of Labor Statistics, "Occupational employment projections to 2018," *Monthly Labor Review Online* 132, no. 11 (November 2009).

Metal Product Manufacturing was projected to decline by 0.9% annually during the same period. *Machinery Manufacturing* employment was projected to decline by 0.8%³³.

Employment in nearly every occupation in this cluster is projected to decline nationally (through 2018)³⁴. Welding occupations are projected to decline by 2%; Tool and die makers by 8%; Machinists by 5%; and Machine setter, operators, and tenders by 13%. Computer control programmers and operators are the only occupation that is projected to increase in employment: by 4%. These trends are largely due to increasing use of technology resulting in productivity increases.

Regional Presence

Some encouraging results came of the Central Connecticut Corridor's focus the metal manufacturing cluster. *Manufacturing* in general lost employment from 2004 to 2009 (see above), but performed better than the national *manufacturing* sector. There was also a decline in the number of companies in the Metal Manufacturing cluster, from 336 in 2004 to 321 in 2009 (see Table 16 in the appendices). The cluster lost 12 *Primary Metal Manufacturing* firms, but gained seven *Fabricated Metal Manufacturers*. Estimates put regional employment in this cluster at 6,908 employees.

At the same time, the average size of those companies grew. For example, only two companies in the entire cluster had more than 250 employees in 2004, but three of them did in 2009. In fact, every range of employment above the 10-19 range grew. This indicates that, while employment in the production trades in general is declining, the companies in this cluster are actually growing. The reasons for this should be investigated further.

Strengths

The region currently enjoys large concentrations of firms and employees in this cluster. This is especially true of *Fabricated Metal Product Manufacturing*, which is nearly 6.5 times as concentrated in the region as it is nationally. As noted above, between 2004 and 2009, the number of companies in that sector grew even while the cluster as a whole was contracting.

The region also enjoys a relative advantage in the so-called "middle-skill" cohort of workers. A recent report argued that New England in general will soon be facing a shortage of workers with an associate's degree or some college education, and a glut of workers with higher degrees (that is, the workers with the higher degrees will no longer enjoy the wage premium they once did)³⁵. Central Connecticut's educational attainment is much less skewed to higher education than the rest of Connecticut.

³³ Curtis D. Spencer and Steve Schellenberg, Inc., "Trends in global manufacturing, goods movement and consumption, and their effect on the growth of United States ports and distribution" (NAIOP Research Foundation, September 2010).

³⁴ Lacey and Wright, Bureau of Labor Statistics, "Occupational employment projections to 2018."

³⁵ Alicia Sasser Modestino, New England Public Policy Center, *Mismatch in the Labor Market: Measuring the Supply of and Demand for Skilled Labor in New England*, Research Report (Boston, MA: Federal Reserve Bank of Boston, November 2010).

Weaknesses

While the region's growth in *Fabricated metal product manufacturing* is positive, it may be a sign of a worsening situation. The Department of Labor projects employment in that sector to decline by 0.3% by 2016 in the Hartford Labor Market Area. On the other hand, employment in *Primary Metal Manufacturing* is projected to increase by nearly 10%. Between 2004 and 2009 the region lost employers in this sector. The region may be falling behind national trends.

The region also currently lacks good transportation infrastructure in many areas, making it difficult to distribute products efficiently. Highway access to Bristol and Plymouth has repeatedly been cited as a problem. Currently, railroad access is also less than optimal.

As will also be discussed below in *Threats*, labor issues are becoming a big concern for this industry. Finding workers who already possess the skills necessary for modern manufacturing processes is difficult. At least one manufacturer that we spoke with reported having troubles filling positions, even with unemployment as high as it is. The workers who apply just do not possess the right skills.

Opportunities

As is often reported, production processes that are labor intensive have moved off-shore to take advantage of lower cost labor markets³⁶. While this would seem to spell absolute doom for the sector in the United States, and Connecticut in particular, the situation is more complex than that. A recent survey of manufacturers showed that cost is their primary concern (including energy costs) when making location decisions, but quality came in at a close second³⁷. Survey participants also reported being increasingly concerned about lax intellectual property laws in developing countries, China in particular. For this reason many companies are looking to the U.S. and Europe for production processes that rely extensively on intellectual property.

Threats

A report by ICF Consulting listed labor force issues as a primary concern of the Metal Manufacturing cluster³⁸. That report noted that, while employment is down overall, there is still a critical need to find and train the next generation of workers in the cluster. Part of this is marketing the field to high school students, to encourage them to pursue further training. This issue was brought up during public outreach efforts. It was argued that the region's schools, and schools in general, are not doing enough to encourage students to enter this field.

Another aspect of labor force concerns is with helping employers upgrade their employee's skills. Many of the job losses are not due to a lack of profitability in the cluster, but rather, to an in-

³⁶ KPMG International and The Economist Intelligence Unit, "Global Manufacturing Outlook: Relationships, risk and reach" (KPMG International, September 2010).

³⁷ Deloitte Development LLC., "Aerospace & Defense - 2010 U.S. Outlook" (Deloitte Development LLC., 2010).

³⁸ ICF Consulting, "Connecticut's Next Generation Competitiveness Initiative: Metals Cluster Strategy" (University of Connecticut Office of Technology Commercialization, August 2005).

crease of productivity. This increased productivity has come from advanced manufacturing techniques that are largely computer driven, requiring workers with different skill-sets. This trend of requiring higher tech skills could leave the region's labor force unprepared for the future.

Findings

The Manufacturing sector, while shrinking in terms of employment, is still a large part of the regional economy. Nearly 15% of the region's workforce is in this sector, and for the most part they earn high wages (the average annual wage in Hartford County for this cluster was \$59,000 versus \$48,000 for all industries in Central Connecticut). Continued productivity increases and off-shoring trends, however, limit the potential for employment growth.

Despite the negative trends, manufacturing can still play a positive role in the economy. Forecasts of doom have been premature, as manufacturing output has actually grown in the United States. While jobs have declined, the ones that do remain are high paying and require high levels of education and training. By focusing on providing a highly trained manufacturing workforce, the region can retain many of the jobs that have been its traditional base. Employers can no longer rely on workers with high school diplomas to run their high tech machinery. Instead, they need people with Associate's degrees or college certificates. If Central Connecticut does not provide these workers, other places will.

Aerospace & Defense

The State of Connecticut defines the Aerospace cluster fairly narrowly, but Metro Hartford uses a broader definition that expands it to include defense and advanced security companies. Using the broader definition, it encompasses aerospace companies that are involved in making parts for airplanes and helicopters, assembling those vehicles, aircraft restoration, prototype design, and making major modifications to aircraft. Other defense manufacturing is included by Metro Hartford, as well as the manufacture of security devices such as monitoring equipment and security systems.

According to a recent report from Deloitte, the Aerospace and Defense industry should be heading out of the recession³⁹. Industry analysts see 2009 as the "trough in the current economic cycle" for this industry. New orders from commercial airlines are expected to in-

Table 12. Aerospace/Defense Cluster

NAICS	Description
336	Transportation Equipment Manufacturing
33612	Heavy Duty Truck Manufacturing
3364	Aerospace product and parts manufacturing
336992	Military Armored Vehicle Tank Manufacturing
332993	Ammunition Manufacturing
332995	Ordnance and Accessories Manufacturing
Advanced Security	
334119	Biometrics system input device
3355999	Electrical Equipment Manufacturing
541380	Testing Laboratories
5417	Scientific Research and Development
56162	Security Systems Services
561612	Security Patrol Services

Source: Connecticut Department of Labor, "Connecticut's Industry Clusters (2005)

NAICS codes in *italics* are subsets of the code above them

³⁹ Deloitte Development LLC., "Aerospace & Defense - 2010 U.S. Outlook."

crease. On the other hand, the defense budget in the United States has been cut and numerous weapons programs have been canceled. Most military contractors can expect lean times, but see below (under Opportunities) for a discussion of recent events in Connecticut⁴⁰.

The Bureau of Labor Statistics forecasts stable employment in *Aerospace Product and Parts Manufacturing* occupations. Although new orders in the commercial sector are expected to increase, productivity increases and off-shoring of production jobs will absorb much of the new demand. The BLS forecasts that engineering professions will be much more stable than production jobs. In the North Central Workforce Investment Area, projections show a moderate decline in employment (through 2016) for the *Transportation Equipment Manufacturing* industry (2%)⁴¹

Regional Presence

In 2009 there were 30 companies in the broader Defense & Advanced Security cluster (see Table 16 in the appendices). Eight of them were in the smaller Aerospace cluster. The overall cluster did not grow from 2004, but the Aerospace sub-cluster grew by two companies. Employment in the cluster is still very significant at 899 employees (estimated).

While few of the region's companies participated in this cluster, the broader Hartford Defense & Advanced Security cluster was quite large. As discussed earlier, Hartford County's Defense and Security cluster was 1.75 times as concentrated as the nation's.

Strengths

The region's close proximity to the Hartford Metro Region allows its companies to participate in a very strong aerospace cluster. Companies like the Barnes Group and CT Tool provide parts that are used by larger firms. Smaller machine shops in the area also provide parts on an order basis from time to time. While Central Connecticut may not meet every need of this cluster, nearby locations do, allowing the region to benefit from proximity. Hartford's existing defense contractors are a great asset, as is its history of manufacturing.

Weaknesses

There are few companies in the region participating in Connecticut's aerospace cluster. This gives them little power to control the direction of the cluster. Since they rely on larger firms, their positions may also be more tenuous. Since none of the major players in the cluster are in this region, the region has little ability to affect the cluster, leaving it vulnerable to external decision makers.

Opportunities

Recently, United Technologies (and subsidiary Pratt & Whitney) won a large defense contract. This contract will keep thousands of high paying manufacturing and design jobs in the larger Metro

⁴⁰ Bureau of Labor Statistics and U.S. Department of Labor, *Occupational Outlook Handbook 2010-2011*, 2009.

⁴¹ Connecticut Department of Labor Office of Research, "North Central Workforce Investment Area: Industry Projections: 2006-2016," *Connecticut Labor Market Information*, 2011, <http://www1.ctdol.state.ct.us/lmi/forecast2006-2016/ncindustry.asp>.

Hartford Region. None of those jobs will be in Central Connecticut, but they are in numerous nearby locations such as East Hartford and Middletown. This development strengthens the cluster statewide as it guarantees a certain level of activity for many years.

Threats

With few firms involved in aerospace actually located in the region, little decision making is done locally. Decisions made outside of the region can have a profound effect on the few firms in this cluster that call Central Connecticut home.

One other factor is the Nation's fiscal situation. Cut-backs are being made at all levels of government, and in all departments, including defense. Future rounds of budget negotiations could adversely impact the State's aerospace cluster, and thus those firms in Central Connecticut that are a part of it.

Findings

While direct cluster employment in the region was relatively low (just 899 employees), this cluster shows signs of improvement. A recent deal struck by United Technologies should ensure a considerable aerospace presence in the broader region for decades to come. UTC is manufacturing engines for a new jet in nearby Middlefield, and other engineering activities are taking place throughout Hartford County. The uncertain situation regarding the national budget may jeopardize future defense spending, but for now, long-term deals should ensure this cluster's presence in Connecticut.

Regional companies already take advantage of this clusters presence, and may find new opportunities in the future. The region's successful metal product manufacturers can be tapped to craft precision parts for aircraft and other defense or security equipment. As with the biotech cluster, some firms are already doing this.

Agriculture

The agriculture cluster is very diverse, including companies ranging from purely agricultural to manufacturers and wholesalers. Also included are firms that brew beer, make wine, manufacture pesticides, and sell farm equipment. Employment in the cluster ranges from management and supervisory positions, requiring some training or advanced education (beyond high school), to entry level positions that pay little and require no advanced education (some positions do not even require a high school diploma).

The Bureau of Labor Statistics projects that farm employment will remain steady, but with numerous openings. Overall employment may decline due to efficiencies and technology. Low wages and the physical demands of the work will result in a steady stream of openings due to turnover⁴². The State of Connecticut projects an overall decline in employment of five percent in this industry through 2016.

⁴² Bureau of Labor Statistics and U.S. Department of Labor, *Occupational Outlook Handbook 2010-2011*.

Food processing and manufacturing on the other hand is expected to grow. In the North Central Workforce Investment Area, employment is projected to grow by 11% from 2006 to 2016⁴³. Nationally, growth is projected to be just under four percent⁴⁴. While growth is projected to be positive, the Bureau of Labor Statistics also predicts that skill levels will decrease as food processing employment shifts from points of sale to processing facilities.

Regional Presence

Farm employment data is not available on a regional level, but at the county level the cluster has performed well. From 2004 to 2009, Hartford County added nearly 10% more jobs in the cluster. This was at a time when it shrank by nearly 2% nationally (see Table 15). According to a recent study, the agricultural industry generated approximately 20,000 jobs statewide, with direct employment of nearly 12,000 jobs. The industry was also responsible for between \$2.72 billion and \$3.51 billion in economic activity in 2007; \$866 million of that was in Hartford County⁴⁵.

The data that is available for the region shows considerable impact as well. There were 33 firms in industries related to the cluster in 2009, down slightly from 2004 when there were 35. Employment is estimated at more than 1,200 people (see Table 16). According to the USDA Agricultural Census there were 152 farms in the region in 2007⁴⁶. Direct year to year employment was not available.

Strengths

The region contains many successful farm operations, many of which are, or could be, tourist destinations. Roger's Orchards operates two farm stands in Southington, attracting people from throughout the region. Lamothe's Sugar House is the state's largest maple syrup producer, and sells

Table 13. Agriculture Cluster

NAICS	Description
11	Agriculture, Forestry, Fishing, and Hunting
311	Food Manufacturing
312120	Breweries
312130	Wineries
312140	Distilleries
3122	Tobacco Manufacturing
3253	Pesticide, Fertilizer, and other Agricultural Chemical Manufacturing
4244	Grocery and Related Product Wholesalers
4245	Farm Product Raw Material Merchant Wholesalers
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers
424910	Farm Supplies Merchant Wholesalers
424930	Nursery and Florist Merchant Wholesalers
424940	Tobacco and Tobacco Product Merchant Wholesalers

Source: Center for Regional Development, Indiana Business Research Center, and , Inc., "Unlocking rural competitiveness: The role of regional clusters" (Purdue University, 2007).

⁴³ Connecticut Department of Labor Office of Research, *Connecticut Labor Force Data for Labor Market Areas & Towns* (Hartford, CT: Connecticut Department of Labor, 2010).

⁴⁴ Bureau of Labor Statistics and U.S. Department of Labor, *Occupational Outlook Handbook 2010-2011*.

⁴⁵ The University of Connecticut Department of Agricultural and Resource Economics and The Connecticut Center for Economic Analysis, "Economic Impacts of Connecticut's Agricultural Industry" (The University of Connecticut College of Agriculture and Natural Resources, September 2010).

⁴⁶ United States Department of Agriculture, "Quick Stats Application," Application, *National Agricultural Statistics Service*, n.d., http://quickstats.nass.usda.gov/?source_desc=CENSUS.

products to a wide area. The region is also located near (and in the case of Plymouth, in) Litchfield County, a popular tourist destination with a growing wine trail.

Other, less traditional agricultural assets exist as well. In New Britain, for example, Urban Oaks operates a successful organic urban farm. They sell to restaurants and farmer's markets throughout the state. The region is also home to food processing facilities, such as the recently opened Celebration Foods in New Britain (in an EDA funded project from the region's 2004 CEDS).

Weaknesses

The region continues to lose valuable farm land to development. Between 1990 and 2006 the amount of agricultural land in the region declined by 17.4%. Deciduous forestland decreased by 5.6%, coniferous forestland decreased by 3.8%, and forested wetland decreased by 2.6%. As of 2006, 30.4% of the region's land was developed, versus 28.2% in 1990.⁴⁷

The rate of land conversion far outpaces the rate of population growth experienced by the region. Between 1990 and 2009 (data was not available for the region in 2006), the population only increased by 1.9%. In 1990 there was about one acre of developed land for every 7.5 people. Since then, land has been developed at a rate of one acre for every 1.77 people.

Opportunities

The local movement and the growth of agritourism are changing the face of the industry. Across the country people are shopping local and buying from farmer's markets. They are also increasingly including food destinations as part of their travel plans. Attractions such as breweries, wineries, and working farms draw large crowds. The region's proximity to successful food destinations like the Connecticut Wine Trail should be examined to see if they can be duplicated or built upon.

Urban agriculture is also becoming a more popular option for underutilized urban space. Urban Oaks has been operating successfully in New Britain, and community facilities such as the community garden in Farmington have become important local amenities. Americans are increasingly interested in food systems and this interest presents an opportunity to strengthen the region's remaining farms.

Gourmet and value-added foods are also becoming more popular. The market for such foods is growing along with the population, both nationally and worldwide⁴⁸. A recent report, however, suggested that the state's farms (and the region's) have not been particularly successful at reaching outside markets⁴⁹. Through cooperative marketing and product development initiatives, the region's farms and food processors could tap into new markets.

⁴⁷ Center for Land Use Education & Research, "Your Town," *Connecticut's Changing Landscape*, n.d., <http://clear.uconn.edu/projects/landscape/your/town.asp>.

⁴⁸ Interagency Agricultural Projections Committee, *USDA Agricultural Projections to 2019*, Long-term Projections (Washington, D.C.: Office of the Chief Economist, World Agricultural Outlook Board, U.S. Department of Agriculture, 2010).

⁴⁹ ICF Consulting, "Connecticut's Next Generation Competitiveness Initiative: Agricultural Cluster Strategy" (University of Connecticut Office of Technology Commercialization, August 2005).

Threats

Rising energy prices will negatively impact food production operations. Farm equipment that runs on fossil fuels will cost more money to run, increasing the cost of food. More expensive food, and more expensive transportation, may negatively impact the region's ability to export its products.

Findings

Following statewide trends, the region's agricultural sector is currently small and not export oriented. Statewide reports have indicated that efforts to increase exports and better market the state's products are needed⁵⁰. The market for food products is growing worldwide, increasing opportunities for the region's agricultural cluster to thrive. Domestic consumption patterns, including agritourism and the local food movement, should fit with the region's current stock of agricultural production firms.

Projections of employment are a mixed bag for this cluster. Farm employment is projected to decline slightly, but offer ample openings due to turnover. Food processing is projected to grow at a relatively fast rate, but will mostly employ lower-wage workers. As noted by a recent report, the agricultural industry's impacts extend beyond direct employment, supporting employment in other sectors such as tourism and food services⁵¹.

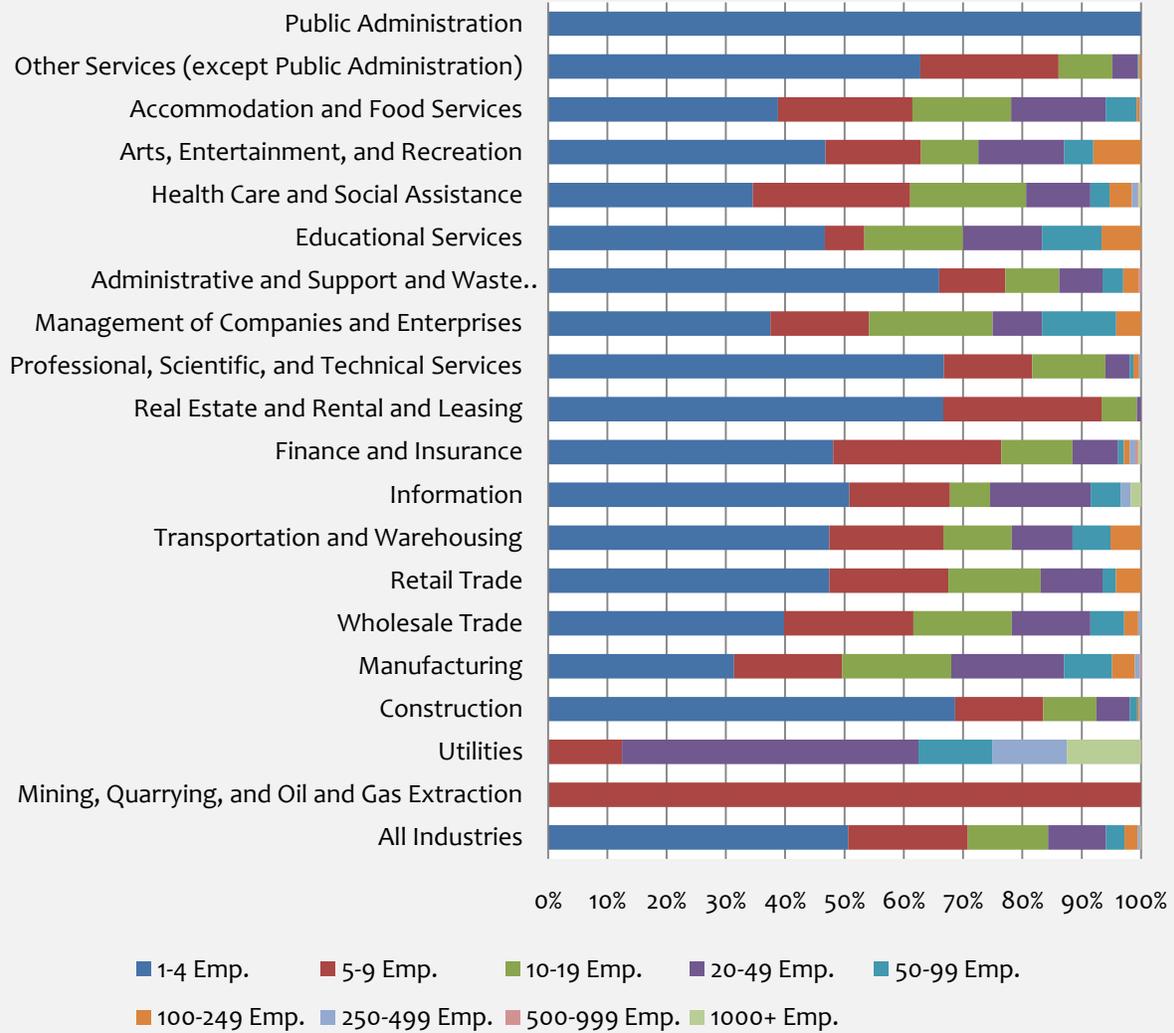
Agricultural activities also indirectly impact the economics of the region. They contribute intangible impacts like preserving undeveloped land that improves quality of life. This in turn makes the region a more attractive place to visit and thus increases tourism revenue. Farmland also provides numerous ecosystem benefits, such as animal habitat and flood control.

⁵⁰ The University of Connecticut Department of Agricultural and Resource Economics and The Connecticut Center for Economic Analysis, "Economic Impacts of Connecticut's Agricultural Industry."

⁵¹ Ibid.

Appendix 1: Detailed Data Tables

Figure 2. Establishment size by industry (2009)



Source: County Business Patterns

Table 14. Shift-share analysis (2004 to 2009)

	Regional Employment				National Employment	Share Shift Analysis		
	2004	2009	Change	% Change	% Change	National Growth	Industrial Mix	Comparative Share
Total - All Industries	83,570	84,711	1,141	1.4%	-0.9%	-9,113.79	8546.68	-192.40
Construction	4852	4,178	-674	-13.9%	-13.7%	-68.65	-595.29	-10.06
Manufacturing	14,926	12,658	-2,268	-15.2%	-17.1%	-211.18	-2342.12	284.89
Wholesale Trade	2809	2,723	-86	-3.1%	-1.4%	-39.74	0.00	-46.51
Retail Trade	9,976	9,389	-587	-5.9%	-3.4%	-141.15	-195.48	-250.46
Transportation and Warehousing	1340	1,006	-335	-25.0%	-1.9%	-18.96	-6.98	-308.56
Information	2726	3,881	1,155	42.4%	-8.8%	-38.57	-200.95	1394.85
Finance and Insurance	1519	2,266	747	49.2%	-3.3%	-21.49	-28.71	797.04
Real Estate and Rental and Leasing	489	571	82	16.7%	-5.3%	-6.92	-18.89	107.56
Professional, Scientific, and Technical Services	2405	2,103	-302	-12.5%	10.2%	-34.03	278.58	-546.14
Management of Companies and Enterprises	440	279	-161	-36.6%	9.4%	-6.23	47.49	-202.52
Administrative and Waste Management	3302	3,098	-204	-6.2%	-8.5%	-46.72	-234.06	76.53
Educational Services	322	299	-23	-7.0%	6.6%	-4.56	25.95	-43.98
Health Care and Social Assistance	13306	14,558	1,251	9.4%	12.7%	-188.26	1884.74	-444.98
Arts, Entertainment, and Recreation	473	501	28	5.9%	4.2%	-6.69	26.59	8.18
Accommodation and Food Services	4885	5,145	260	5.3%	4.6%	-69.12	291.59	37.19
Other Services (except Public Administration)	2833	2,965	132	4.7%	1.9%	-40.08	93.85	78.15

Note: Red rows represent sectors that performed much worse in the region than in the nation; green rows are sectors that performed much better.

Source: U.S. Bureau of Labor, Quarterly Census of Employment and Wages (Washington, D.C.: U.S. Bureau of Labor)

Table 15. Shift-share analysis of national clusters in the Hartford region

	Regional Employment				National Employment	Share Shift Analysis		
	2004	2009	Change	% Change	% Change	National Growth	Industrial Mix	Comparative Share
Total - All Industries	479,234	486,187	6,953	1.5%	-0.5%	-2,485	0	9438
Advanced Materials	12,800	11,981	-819	-6.4%	-11.5%	-66	-1400	1467
Agribusiness, Food Processing & Technology	3,688	4,051	363	9.8%	-1.8%	-19	-47	429
Apparel & Textiles	2,604	2,063	-541	-20.8%	-27.2%	-14	-696	168
Arts, Entertainment, Recreation & Visitor Industries	13,000	14,245	1,245	9.6%	-0.5%	-67	3	1310
Biomedical/Biotechnical (Life Sciences)	25,751	28,237	2,486	9.7%	13.5%	-134	3622	-1002
Business & Financial Services	73,730	74,088	358	0.5%	2.4%	-382	2143	-1402
Chemicals & Chemical Based Products	3,798	3,299	-499	-13.1%	-15.7%	-20	-575	95
Defense & Security	40,508	43,415	2,907	7.2%	1.6%	-210	848	2269
Education & Knowledge Creation	40,226	43,386	3,160	7.9%	5.7%	-209	2504	865
Energy (Fossil & Renewable)	18,819	18,361	-458	-2.4%	2.5%	-98	565	-925
Forest & Wood Products	7,460	6,339	-1,121	-15.0%	-26.1%	-39	-1906	824
Glass & Ceramics	2,097	1,880	-217	-10.3%	-21.0%	-11	-429	223
Information Technology & Telecommunications	16,986	18,307	1,321	7.8%	-0.5%	-88	2	1407
Transportation & Logistics	11,103	10,117	-986	-8.9%	-1.9%	-58	-154	-774
Manufacturing Supercluster	44,389	41,350	-3,039	-6.8%	-16.0%	-230	-6877	4069
Primary Metal Mfg	809	674	-135	-16.7%	-21.9%	-4	-173	43
Fabricated Metal Product Mfg	12,860	11,892	-968	-7.5%	-12.2%	-67	-1508	607
Machinery Mfg	6,164	5,928	-236	-3.8%	-10.2%	-32	-596	392
Computer & Electronic Product Mfg	2,175	1,935	-240	-11.0%	-13.9%	-11	-291	62
Electrical Equipment, Appliance & Component Mfg	3,090	2,582	-508	-16.4%	-16.3%	-16	-486	-6
Transportation Equipment Mfg	19,291	18,340	-951	-4.9%	-22.8%	-100	-4300	3449
Printing & Publishing	11,243	11,137	-106	-0.9%	-10.9%	-58	-1162	1114

Note: Green rows are clusters that show a high regional concentration (LQ).

Source: U.S. Bureau of Labor, Quarterly Census of Employment and Wages (Washington, D.C.: U.S. Bureau of Labor)

Table 16. Central Connecticut presence in selected industry clusters

Industry Cluster	Number of Companies (2004)	Number of Companies (2009)	Estimated Employment[†]
Metal Manufacturing	336	321	6,908
Health Services	480	527	14,558*
Printing & Publishing	79	70	4,049
Insurance & Finance	301	328	4,068
Bioscience & Biotechnology	26	36	605
Aerospace & Defense	29	30	899
Logistics & Distribution	46	56	521
Tourism	107	97	4,580
Clean Energy	12	10	186
Agriculture	35	33	1,290

[†]Estimated Employment data comes from an analysis of ReferenceUSA listings. It is not comparable to other employment statistics used throughout this report nor do all data points come from a given year. The number of companies in a given cluster is derived from County Business Patterns Zip Code level data.

* Health Services employment estimates are based on the health and social services sector.

Appendix 2: Analysis of Other Industry Clusters

To better understand the prospects of the clusters that exist in the Metro Hartford Region, a review of employment and industry trends was completed. This, along with the data analysis presented earlier, was used to narrow down the list of clusters. It does not represent a complete “cluster analysis” as no attempt was made to analyze the linkages between firms. Such an analysis was outside of the scope of this project.

Insurance and Finance

The Insurance and Finance cluster, as defined by the State of Connecticut, includes five interrelated industries. They include insurance carriers, financial services companies such as funds and trusts, and real estate companies.

Employment growth in the component industries has been, and is projected to be, mediocre at the national level. Between 2004 and 2008, employment grew by just 1.6%. In large part this was due to major losses in *Funds, Trusts, and Other Financial Vehicles*, which lost over 68% of its employment due to the financial crisis. On the other hand, *Real Estate* firms increased employment by nearly 7%, but given the vintage of the data (2008), this may not reflect more recent losses in the sector.

Moderate to average growth is projected for component industries. From 2008 to 2018, *Insurance* employment is projected to increase by just 3% while total national employment is projected to increase by 11%. *Securities, Commodities, and Other Investments* is projected to follow the national average by adding 12% more jobs. The less than stellar outlook is mostly due to productivity increases (many functions are moving to the Internet) and consolidation of the industry to major financial centers such as New York.

The skills required to succeed in this cluster can vary considerably. Many basic office support functions require only a high school diploma or a 2 year degree. For sales, management, or other professional positions, a college degree is either required or highly valued. This is especially true of *Securities, Commodities, and Other Investments*. Wages tend to be higher than average.

Regional Presence

In 2004 the region had 301 firms engaged in cluster related activities. By 2009 this number had grown to 328. The greatest growth came from *Real Estate* firms, of which the region gained 27. While the number of firms increased, average employment decreased. Estimated regional employment in this cluster is 4,068 people.

Table 17. Insurance and Finance Cluster

NAICS	Description
522	Credit Intermediation and Related Activities
	Securities, Commodity Contracts, and Other
523	Financial Investments and Related Activities
524	Insurance Carriers and Related Activities
525	Funds, Trusts, and Other Financial Vehicles
531	Real Estate

Source: Connecticut Department of Labor, “Connecticut’s Industry Clusters (2005)”

The region's largest presence is in the *Insurance agencies and brokerages* subsector. Over a quarter of the region's cluster employment is in this sector. The largest area of employment is in the *Offices of real estate agents and brokers* subsector, representing over 800 employees.

Strengths

The region's greatest strength is its location. It is near Hartford, once the capital of the insurance industry. It is also located between Boston and New York, two major centers of financial services. This makes Central Connecticut, like Hartford, a good location for back office and call center operations for insurance and finance firms.⁵² The region's relatively (for Connecticut) low cost of living and large supply of middle-skill workers should meet the needs of such firms well.

Weaknesses

Higher end functions of the cluster have labor needs that do not match the labor supply in Central Connecticut. The region has a comparatively small number of people in professional occupations, and its educational attainment lags the rest of the state and larger Hartford region. Employment estimates from *ReferenceUSA* reflect that. Most of the region's employment in this cluster is focused on sales activities (brokers and agents). Very little regional employment is concentrated on the corporate, insurance underwriting side.

Opportunities

The Metro Hartford Alliance identified call centers, back office processing, and financial service software development as niche targets. Due to Central Connecticut's proximity to Metro Hartford, success for the latter could spill over to the former.

Threats

The consolidation trend threatens the region's ability to capitalize on its greatest asset. Firms that leave the Hartford area for other locales are less likely to site back office support functions in Central Connecticut.

Clean Energy

The Metro Hartford Alliance identified a clean energy cluster centered on the development and production of technologies that make energy generation more environmentally friendly⁵³. This is part of the larger category of "green jobs". The definition used by Metro Hartford included companies generating power or developing the technology for power generation. No such cluster has been identified by Connecticut.

⁵² Angelou Economics, *Metro Hartford Target Industry Report* (Hartford, CT: Metro Hartford Alliance, October 2005).

⁵³ Pew Charitable Trusts, *Global Clean Power: A \$2.3 Trillion Opportunity* (Philadelphia: The Pew Charitable Trusts, 2009).

The Bureau of Labor Statistics projects that renewable energy, while still small, will be the fastest growing segment of the *Utilities* sector. Overall, employment in the Utility sector, *Electric power generation* in particular, is projected to decline (by over 10%). This is largely due to older plants, which required a greater number of workers, being replaced with newer, more efficient ones. Renewable energy on the other hand, should increase employment.

Table 18. Clean Energy Cluster	
NAICS	Description
22111	Electric Power Generation
2211199	Electric Power Generation - Solar, Wind
334413	Semiconductor related Manufacturing
3355999	Electrical Equipment Manufacturing
541380	Testing Laboratories
5417	Scientific Research and Development

Source: Angelou Economics, *Metro Hartford Target Industry Report* (Hartford, CT: Metro Hartford Alliance, October 2005).

Regional Presence

No clean energy cluster could be identified in Central Connecticut based on the definition used by Metro Hartford. The Metro Hartford cluster is primarily located in the Eastern portion of that region and is headed up by United Technology’s fuel cell division and fuel cell research facilities at UConn.

Strengths

As mentioned elsewhere, Central Connecticut has a very productive manufacturing sector that may be conducive to clean energy companies. This includes companies like General Electric, which currently operates a facility related to their electric car charging products in Plainville.

The region is also relatively affordable compared to the rest of Connecticut and has incubator space for new companies. Housing in the region is generally less expensive than the rest of the State, as is industrial space. Incubator space at ITBD could be perfect for new companies looking for an inexpensive way to get their business started.

Weaknesses

The region’s workforce is not as highly educated as Metro Hartford’s is. As mentioned above, the clean energy cluster relies on highly educated researchers to produce the new technology necessary for clean energy. The region’s lower than average educational attainment would not seem to currently meet that requirement.

Opportunities

Under the current presidential administration, clean energy has been identified as a major priority. Increasing energy costs, global instability, and environmental concerns are all creating the impetus for increased investment in this cluster. Numerous tax credits and incentives have been proposed by the administration. Some uncertainty does exist as to how many of them will make it through current budget negotiations.

Connecticut in particular has ample reason to invest in such technology. The State has the highest commercial and industrial electricity rates in the continental United States. The State’s

reliance on outside fuel sources is part of the problem. By developing alternative sources, and a more robust infrastructure, costs may be lowered. This will in turn lower the costs of doing business.

Investment in clean energy is expected to increase dramatically in the coming years.. By 2020, one report estimates it will be a \$2.3 trillion industry.⁵⁴ Just within the past few years (from 2005 to 2009), global investment increased by 230%.⁵⁵ In the coming years, investment is projected to be greatest in wind and solar, though solar investment is expected to fall behind.⁵⁶

Threats

Current economic conditions have forced a change of priorities at the national level. It is unclear how much emphasis clean energy will get in the next few years as policy makers attempt to solve the unemployment crisis that grips the Nation.

The United States has fallen behind in the clean energy field. A report from 2009 stated that China had surpassed the United States in total investment dollars in clean energy, and that the U.S. was lagging behind in other metrics as well.⁵⁷ A major factor was the lack of a comprehensive energy and climate change policy in the United States. Without such a policy, confidence in the continued existence of tax credits and other incentives is low.

Logistics and Distribution

Companies involved with logistics and distribution generally perform activities related to the movement and storage of goods. They include the physical movement of goods, such as trucking or rail companies, arranging for the movement of good, providing the support structure for transportation activities, and warehousing goods.

On the national level, the industries in this cluster (excluding rail transportation, which is suppressed due to confidentiality concerns) have performed well when measured by employment. Between 2004 and 2008 employment grew by 9.2%. Of the clusters identified by Connecticut and Metro Hartford, the industries in Logistics & Distribution had the most employment growth.

Nationwide, employment in this industry is projected to increase between 2008 and 2018, but at a moderate pace (just 0.1% industry-wide). In Connecticut, much greater growth is pro-

Table 19. Logistics & Distribution Cluster

NAICS	Description
484	Truck Transportation
482	Rail Transportation
4885	Freight Transportation Arrangement
4884	Support Activities for Road Transportation
4882	Support Activities for Rail Transportation
493	Warehousing & Storage

Source: Connecticut Department of Labor, "Connecticut's Industry Clusters (2005)"

⁵⁴ Pew Charitable Trusts, *Who's Winning the Clean Energy Race?: Growth, Competition, and Opportunity in the World's Largest Economies* (Philadelphia: The Pew Charitable Trusts, 2010).

⁵⁵ Pew Charitable Trusts, *Global Clean Power: A \$2.3 Trillion Opportunity*.

⁵⁶ Pew Charitable Trusts, *Who's Winning the Clean Energy Race?: Growth, Competition, and Opportunity in the World's Largest Economies*.

⁵⁷ Angelou Economics, *Metro Hartford Target Industry Report*.

jected. *Support Activities for Transportation* is projected to grow by nearly 30% (by 2016), *Air Transportation* is projected grow by 9%, *Truck Transportation* by nearly 8%, *Rail Transportation* by 7%, and *Warehousing and Storage* by over 12%. Combined, these industries will add over 1,000 jobs in Connecticut.

Regional Presence

The Central Connecticut Region has a small presence in this cluster, mostly in trucking (see Table 16 in the appendices). In total, there were 56 companies representing this cluster and 43 of them were in *Truck Transportation*. Only one company had more than 100 employees. Estimated employment for the cluster is 521 employees.

Overall, the larger *Transportation & Warehousing* was underrepresented in the region. The region scored an LQ of just 0.3 against the nation. It did however have a much bigger presence when compared with the state or the Hartford Labor Market Area, 0.58 and 0.68 respectively. This is not at all surprising when one considers that most overseas freight enters the country on the west coast, and thus national employment is concentrated there.

Strengths

The larger region of Hartford has many transportation assets. Bradley International Airport is located nearby, providing air freight services. In West Springfield, MA, there is an inland intermodal port, providing rail and trucking services. Additionally, the region now has a class 1 railroad line, operated by Norfolk Southern. Future improvements in the region's rail infrastructure should open currently dormant industrial land to new investment. This will make the region a more desirable place for warehousing and distribution companies.

Weaknesses

Currently, large portions of the region have limited accessibility. As mentioned above, Bristol and Plymouth are not easily accessible from major interstates. This is particular concern because the Hartford Region in general is much more reliant on trucking for freight movement than is the rest of the country (as reported in the region's Draft Long Range Transportation Plan). While greater investment in the region's rail infrastructure is planned, it is currently underutilized. The relatively poor state of the region's transportation infrastructure puts it at a disadvantage to take advantage of upcoming changes in the nation's freight dynamics (see below).

Opportunities

There are two trends that are expected to drastically change the dynamics of the logistics and distribution industry. The first is the widening of the Panama Canal. Currently, most large shipments of freight originating from Asia head to the west coast, where they are put on trains or trucks and shipped east. Once the Panama Canal is widened, these shipments will be able to take an all-

water, and thus cheaper, route to the east coast. This should spur development of the industry on the east coast⁵⁸.

The second trend is the price of fuel. As fuel prices go up firms respond in two ways. The first is that they shift the mode of transport they use, where possible, from trucks to more efficient methods like rail or water. The second way they respond is by moving distribution facilities closer to ports and markets. These responses should positively impact the east coast and provide new opportunities for regions that have ample space and are well connected by rail.

Threats

A shift from trucking to rail for freight movement could negatively impact the region if investments are not made in its rail infrastructure. More than other regions, the Greater Hartford region relies on trucking for the movement of freight. Every year, 98% of the freight moving through the greater region is transported by truck. Nationally the average is 79%. A dramatic decrease in trucking due to cost concerns could negatively impact the region.

Tourism

The tourism cluster of Connecticut encompasses many different industries (See Table 20). Firms engaged in hospitality, transportation, the arts, and recreation are all included.

This cluster has a large variety of labor needs due to the diversity of component industries. *Arts, Entertainment, and Recreation* companies tend to rely on seasonal and part-time labor that requires little education and low wages; workers also tend to be younger than average. About 59% of employment is in service occupations. There is some opportunity for higher wage and higher skilled work. About 12% of workers are professionals, such as musicians, designers, and museum curators. Another 15% or so are in management or administrative positions.

The same is true of those in the *Traveler Accommodation* industry. Most workers are low-skilled and receive low wages. About 64% are in service occupations. About 5% are in maintenance occupations. The rest are in management and administrative positions.

Table 20. Tourism Cluster

NAICS	Description
71	Arts, Entertainment, and Recreation
7211	Traveler Accommodation
7212	RV (Recreational Vehicle) Parks and Recreational Camps
481111	Scheduled Passenger Air Transportation
481211	Nonscheduled Chartered Passenger Air Transportation
482111	Line-Haul Railroads
487	Scenic and Sightseeing Transportation
532111	Passenger Car Rental
532292	Recreational Goods Rental
561510	Travel Agencies
561520	Tour Operators
561591	Convention and Visitors Bureaus
561599	All Other Travel Arrangement and Reservation Services

Source: Connecticut Department of Labor, "Connecticut's Industry Clusters (2005)"

⁵⁸ Tim Feemster, "Trends in Logistics and the Impact on Real Estate" (presented at the Hartford-Springfield Economic Partnership Annual Meeting, East Windsor, CT, December 9, 2010).

The BLS expects employment in these industries to increase, due to rising incomes and an increase demand for leisure activities. Within Connecticut, employment in *Arts, Entertainment, and Recreation* is projected to increase by 17% by 2016 over its 2006 total. *Accommodation and food Services* is projected to increase by nearly 13%. Nationwide, the industries that make up this cluster increased employment by 6.3% between 2004 and 2008.

Regional Presence

As of 2009 there were 97 companies in Central Connecticut engaged in tourism cluster related activities (see Table 16 in the appendices). This was a decrease from 2004 when there were 107 such companies. The biggest drop was in Arts, Entertainment, and Recreation, which, as was mentioned earlier in this report, has long been underrepresented in this region. In 2004 there were 70 companies in this sector, which dropped to just 62 in 2009. While the number of companies dropped, they did get bigger, probably leading to greater overall employment⁵⁹. Overall estimated employment in the region was 4,580.

Strengths

The region is home to many cultural attractions that, either, already draw people from outside the region, or could start to draw people from outside the region. The New Britain Museum of American Art has an outstanding collection of works by important American artists. The region is also home to the Nutmeg Symphony and the Hole in the Wall Theater.

The region has many recreational opportunities as well. Examples include the New England Trail, which travels through Southington and Plainville (soon to be completed). Numerous hiking and biking opportunities exist elsewhere in the region, such as Burlington and Plymouth.

The region is also home to a major cultural icon: ESPN. While there are no current attractions that take advantage of this resource, its name recognition is a great asset for the region.

Weaknesses

Some notable gaps in the cluster were present. There were no companies engaged in renting out recreational equipment and just one company offered sightseeing tours. No regularly scheduled passenger air travel is offered in the region either, but nearby Bradley International Airport provides good access to the region. The region also lacked companies offering camping or RV facilities.

Development patterns in the region will limit its ability to attract tourists. According to the most recent statistics from the Census, most of the population growth in the region has occurred in areas that traditionally had limited development, such as Southington and Burlington. While this is good for the grand lists of those municipalities, such development reduces the land available for recreation and scenic enjoyment. As was mentioned in the *Regional Profile*, land development has outpaced population development. Agricultural land declined by over 17% since

⁵⁹ Time series data is not available at the regional level.

1990, deciduous forest land declined by nearly 6%, and coniferous forest land declined by nearly 4%. At the same time, turf and grass land increased by 12%.

Opportunities

National trends favor a revival of tourism in the region. People across the country are attempting to buy local and are increasingly interested in local food systems. Agritourism is becoming a big industry and the region's agricultural attractions such as Roger's Orchards can expect new opportunities for growth. Linkages between the agricultural cluster and the tourism cluster should be explored.

Travelers are also increasingly interested in heritage tourism. In a study from 2009, 78% of respondents reported participating in cultural and heritage activities. These travelers also traveled more often and spent more money on cultural and heritage activities. The study also found strong links between these travelers and the agritourism trend mentioned above. Cultural and heritage travelers were more likely to report visiting farmers' markets, sampling wine, and attending food or wine festivals⁶⁰.

Funding for tourism promotion was recently restored at the State level. Prior to this year, just \$1 was available for marketing Connecticut to tourists. Governor Malloy has restored the State's tourism budget and promises to increase efforts to market the State nationally and internationally. This will allow Central Connecticut, and the surrounding regions, to better market to an international audience.

Threats

The continuation of suburban development patterns could be disastrous to the region's tourism prospects. Sprawling development patterns, while meeting certain market desires, reduce the attractiveness of area to tourists. While this is also a weakness of the region, external market pressures are placed on municipalities to develop in this manner. Market pressures have eased since the housing bubble burst, but there is a threat that development will rebound and continue in a sprawling pattern.

⁶⁰ Angelou Economics, *Metro Hartford Target Industry Report*.