

NEW HAVEN

INNER CITY BUSINESS STRATEGY INITIATIVE

CREATING JOBS, INCOME, AND
WEALTH FOR INNER CITY RESIDENTS

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INNER-CITY RESIDENTS**



On behalf of the New Haven Advisory Board, I am pleased to present the New Haven region's action plan for inner-city business development. The New Haven inner-city community, the regional private sector leadership, and public leadership came together to develop these strategies for addressing the complex issues and opportunities facing our core neighborhoods in New Haven, Hamden and West Haven.

This effort comes at a critical time. A strong state and national economy, coupled with significant progress and momentum in New Haven's own revitalization, create a window of opportunity to broaden the reach of economic prosperity.

The strategies described in this document build on a host of initiatives underway or planned across the region in areas such as biotechnology, arts and entertainment, brownfields redevelopment, major infrastructure improvements, and the New Haven Empowerment Zone strategic plan. This process has added value by identifying connections across many functional, geographic, and organizational boundaries. It has also increased regional recognition of the direct link between the economic health of the regional clusters and the untapped assets of inner-city residents and businesses.

New Haven's action plan identifies the six critical industry clusters driving economic development and six equally important crosscutting issues that need improvement to enable these clusters to thrive. Within each area, we suggest strategies for increasing the competitiveness of the inner city and its residents to ensure that these engines of growth pull for all communities and residents of the region.

The Advisory Board further suggests sustaining institutions to advance the work on each of the crosscutting issues. We propose that the Greater New Haven Chamber of Commerce focus the leadership of business owners within each cluster to connect all strategies to the needs of the marketplace.

Above all, we want accountability. Although this report concludes our planning effort, the Advisory Board will reconvene periodically to review progress using our "scorecards" and recommend adjustments in the strategy. I remain committed to the mission and goals of this effort and invite all participants and interested parties to join in working toward the results we seek.

Sincerely,

A handwritten signature in black ink, appearing to read 'N. Woodson', written in a cursive style.

Nathaniel D. Woodson
Chairman
The United Illuminating Company

ACKNOWLEDGMENTS

We would like to gratefully acknowledge the leadership and generous commitment of time, energy, and resources of all of the following:

- Governor Rowland and the leadership of the Connecticut Legislature
- Governor's Council for Economic Competitiveness and Technology
- The Connecticut Department of Economic and Community Development (DECD)
- The Initiative for a Competitive Inner City (ICIC)
- The Connecticut Economic Resource Center, Inc. (CERC)
- New Haven Inner-City Business Strategy Initiative Advisory Board and Research Team
- City of New Haven Office of Business Development and Community Services Administration
- Greater New Haven Chamber of Commerce
- Regional Growth Partnership
- Empower New Haven, Inc. and the Empowerment Zone Program Council
- Quinnipiac College School of Business
- Greater New Haven Business and Professional Association
- Regional Workforce Development Board of Greater New Haven
- New Haven inner-city and regional business owners

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EXECUTIVE SUMMARY

Project Overview

New Haven is one of five cities participating in the Connecticut Inner-City Business Strategy Initiative, launched in January 1999 by the Governor's Council on Economic Competitiveness and Technology. The mission of the **New Haven Inner City Business Strategy Initiative** is to develop data-driven and market-driven strategies to increase business activity, resident employment, income, and wealth within the region's inner-city neighborhoods. The charge is to:

- **Identify specific private market development and business opportunities based on the inner city's competitive advantages**
- **Identify competitive disadvantages that require mitigation**
- **Build on successful existing projects and position them within a wider framework of cooperation and collaboration for inner-city business development**
- **Link inner-city businesses and residents to business and employment opportunities in the surrounding city and region**

Study Area

The study area was defined by measures of poverty (greater than 20 percent of households earning less than \$20,000 per year), median household income (median income less than 50 percent of regional median), and unemployment (more than 150 percent of the regional rate). Local knowledge was used to refine the boundaries, resulting in a study area that touches three communities (Hamden, New Haven, and West Haven) with a resident population of approximately 84,000. An estimated 40 percent of the study area population over 25 years of age lacked a high school diploma in 1990.

Context

From June 1999 to January 2000, a team of 25 Greater New Haven business, civic, community, and academic leaders came together around the critical challenge of devising an assets-based strategy for economic revitalization that will create, jobs, income, and wealth in New Haven's inner city. As this initiative began, New Haven and the region were launching or continuing several other major economic development initiatives including the Empowerment Zone Strategic Plan, a push for biotechnology development, and a brownfields redevelopment strategy. In light of this, the Advisory Board's goal was to advance and sharpen the focus of the community's emerging economic development initiatives within the following framework:

- **National and Global Context.** The New Haven region functions and competes within regional, national, and global economies, as identified by the Connecticut Institute for the 21st Century in their recent report. It is thus heavily affected by state and national policies and by market forces that determine the economic future of these larger areas.

- **Regional Interconnectedness.** The fate of the region is inextricably linked to the fate of the core city, inner ring suburbs, and the inner-city areas within them. It is in the interests of the entire region to increase inner-city competitiveness.
- **Industry Cluster Approach.** Industry clusters are defined as a group of companies involved with the same technology or market that are located close to one another. Six industry clusters contain more than 67 percent of the region’s jobs. This study will help those involved with regional, municipal, and Empowerment Zone economic development efforts to identify and reinforce areas of common interest, address areas of potential conflict, and ensure that their strategies are firmly grounded in the marketplace and focused on creating jobs, income, and wealth for inner-city residents.

TABLE ES-1: NEW HAVEN’S MAJOR INDUSTRY CLUSTERS

Cluster	Opportunity	Regional Employment*	Primary Cluster-based Strategies
Knowledge-based Businesses	Biotechnology Information technology Higher education Health	75,210	Biotechnology: lab space and workforce Information Technology: smart buildings, workforce Health: workforce
Arts, Entertainment & Tourism	Arts Facilities Report Marketing Strategy Nat'l Arts Stabilization funding	20,661	Implement arts facilities report Regional cultural plan/neighborhood initiative Workforce initiative
Manufacturing	Strong demand for labor	35,709	Expand workforce program Address cost, technical assistance Sites for expansion
Commercial Services	Demand for services within growing clusters Workforce needs	17,050	Business services to expand Create links to growing clusters
Construction	Over \$1 billion in construction Organized labor partners	9,449	Regional Contractor’s Alliance to support growth of small contractors Workforce Initiative
Retail/Distribution	Downtown sites Neighborhood districts	25,546	Retail Academy Downtown Market Report Neighborhood business services

* Employment figures for the towns of Greater New Haven are from Dun & Bradstreet Marketplace, 1999 as compiled by the Greater New Haven Chamber of Commerce.

The six clusters shown in Table ES-1 are major drivers of New Haven's regional economy. These clusters comprise over 183,000 jobs, 67 percent of the 275,000 jobs in the region. In each cluster, a number of initiatives are underway. The region's challenge is to create conditions for the six clusters to (1) compete in the global marketplace and (2) expand business and employment opportunities in the inner city.

A primary vehicle for accomplishing these strategies will be the New Haven Empowerment Zone Strategic Plan, submitted to the U.S. Department of Housing and Urban Development in October 1998. New Haven was designated an Empowerment Zone in January 1999 and is in early implementation stages.

Accomplishments of the Planning Process

Over 25 corporate, government, and community leaders were actively involved in the study and committed to inner-city economic development. The Advisory Board and Research Team managed a rigorous planning process that included 50 interviews conducted with inner-city companies. The interviews supplemented published data to provide in-depth knowledge of the competitive advantages and disadvantages specific to New Haven's inner city.

Major accomplishments of the Advisory Board included the following:

- Identifying the **six industry clusters** that drive New Haven's regional economy (Table ES-1) and opportunities for inner-city business growth within these clusters.
- Identifying **six crosscutting issues** that must be addressed to realize the opportunities in these clusters. The Advisory Board also developed **specific strategies** to address these issues, identified **sustaining institutions** that will be held accountable for addressing the issues, and created a **scorecard process** to track progress and accountability (Table ES-2).
- Identifying four areas in which **additional state resources** can be focused to produce significant results in our cluster-based and issue-based strategies (Table ES-2).
- Developing a cohesive vision for inner-city revitalization across the leadership of the participating sectors.

With sustained commitment and incremental state resources, the following outcomes are anticipated:

- Prepare over 1,000 inner-city residents to compete for higher-skilled jobs with opportunities for advancement in the inner city and regional labor market.
- Facilitate inner-city business growth, attract new businesses to the inner city, and support individual inner-city entrepreneurs in starting new businesses to meet the growing demand for goods and services across the six clusters and among the resident population.
- Develop a pool of inner-city entrepreneurs poised to take on new business opportunities.
- Fundamentally alter the attitudes of customers, investors, and business professionals regarding business opportunities in New Haven's inner-city areas.
- Continue to refine and rally support behind a focused regional and inner-city economic development agenda engaging business, government, community, and nonprofit leadership.

Summary of Key Recommendations

The project's strategic vision is based on the following three interrelated elements of inner-city competitiveness:

1. **Competitive Industries:** A base of strong and growing businesses
2. **Competitive Cities:** A business environment that facilitates growth
3. **Competitive Residents:** A workforce prepared to take advantage of new economic opportunities

The project focuses on developing each of these critical determinants through new investments that build on citywide and regional economic development strategies. Table ES-2 summarizes strategies, implementation responsibilities, requirement for state funding, and scorecard measures for each crosscutting issue.

Competitive Industries

▪ **Develop regional cluster leadership**

To foster on-going business growth in New Haven, the New Haven Advisory Board proposes that the private sector leadership structure, led by the Greater New Haven Chamber of Commerce, organize key leaders in each cluster (knowledge-based businesses, arts, entertainment & tourism, manufacturing, commercial services, construction, and retail/distribution). These cluster advocates would develop focused agendas building on the recommendations in this report. Each cluster agenda would have two components:

- Strategies to support the health and growth of the cluster in the region
- Strategies to ensure that this growth benefits the businesses and residents in the region's inner city

The agenda-setting process will engage public and community partners in the creation of scorecards to assess progress in meeting goals.

Regional cluster advocates will coordinate closely with statewide cluster initiatives and existing inner-city economic development initiatives such as the Empowerment Zone. The Chamber of Commerce will provide technical support for each of the six clusters through existing or new internal councils or affiliated organizations.

▪ **Increase business support services and access to capital**

While many entities assist businesses and provide loans in New Haven, no framework or umbrella mechanism exists to coordinate or provide easy access to these services. Business interviews revealed a strong unmet demand for technical assistance to support business growth. Business owners also cited

Competitive Industries: Anticipated Outcomes

In three years, this strategy will expand local capacity as follows:

- **250 additional businesses** will receive critical technical and managerial assistance for expansion.
- **Four business schools and corporate partners** will be engaged in delivering business services.
- Loans made to inner city businesses will increase by **10 percent**.

access to capital as a major barrier to success. The New Haven Advisory Board recommends the establishment of a coordinated leadership umbrella, **New Haven Business Connection**, to unite and focus the efforts of New Haven's many business development organizations. Planning and execution of the umbrella entity will be the responsibility of the private sector leadership structure under the guidance of the Greater New Haven Chamber of Commerce. The Business Connection will include a neighborhood-focused, coordinated business support structure offering business planning, technical assistance, and access to capital. A comprehensive guide to all programs and services (Web and hard copy) will also be prepared and published.

The organization can also pursue the following efforts: 1) mobilize the underutilized resources of regional business schools; 2) convene financial institutions, business representatives and nonprofit leaders to support business development efforts; 3) assess the availability of capital and the need for new loan products; and 4) develop a mechanism to monitor capital flow to inner-city businesses and technical assistance needs.

Competitive Cities

▪ Increase availability of clean, buildable sites in the inner city

New Haven's inner city offers locational advantages due to transportation access and infrastructure. Many of the available sites, however, are temporarily unusable due to environment liabilities, obsolete structures, or zoning issues. Investment in the remediation of these sites is required for New Haven's inner city to meet its potential as a competitive business location.

The Regional Growth Partnership and the City of New Haven will lead a coalition of institutions in creating a comprehensive site development strategy. The coalition will include Empower New Haven, Inc., the Greater New Haven Chamber of Commerce, the State DECD and DEP, Science Park Development Corporation, and key landowners. These groups will work to:

- Develop a prioritized list of brownfield sites
- Identify potential assemblages and resolve how to aggregate parcels
- Analyze the cost of returning these sites to market use at competitive rates
- Seek a combination of state and federal funds and incentives to remediate and assemble specific sites

Competitive Cities: Anticipated Outcomes

If successful, in three years this group will have applied new state resources to:

- **Complete environmental assessments** on eight sites *within the inner-city study area*
- Develop a detailed prioritized redevelopment strategy **for 100 acres of currently unusable land**
- **Increase available land** for development by 40 acres
- Initiate the development of **four sites in the study area**

- **Create lab space and smart buildings in the inner city**

New Haven is positioned for growth in both the biotechnology and information technology (IT) clusters within the larger knowledge-based business cluster. New approaches and incentives are required to create affordable lab space for start-up and early-stage biotechnology companies. New Haven's information technology infrastructure is strong and several start-ups have emerged in the Greater New Haven area. New Haven will encourage information technology companies to locate in the inner city by increasing site availability. This will include creating "smart buildings" by bringing high bandwidth (fiber optic) capability to designated buildings.

- **Enhance actual and perceived security in inner-city areas**

Business owners who were interviewed cited perceptions of crime as the top competitive disadvantage in New Haven. Although crime rates have declined dramatically, continuing concerns about crime inhibit business growth and expansion. Both the perception of crime and actual crime must be addressed. Proposed action strategies include the following:

- Deepen community-based policing partnerships with businesses and neighborhoods
- Create a security consultant / ombudsman position within the Police Department to work with businesses and the business services umbrella entity to address security concerns
- Create trusted neighborhood scorecards to address perceptions

Competitive Residents

- **Implement a three-part strategy to improve workforce skills in six clusters**

Despite the substantial resources being devoted to education and training in New Haven, many employers are frustrated with the skill levels and work readiness of their applicants. While demand for labor is high throughout the economy, many unemployed and underemployed inner-city residents do not have the access and/or preparation to secure available jobs. The New Haven Advisory Board recommends a three-part strategy to address the skill deficits and barriers to successful employment that many inner-city residents face.

In the **short term**, the Advisory Board proposes a comprehensive job readiness and placement initiative with neighborhood-based outreach. This will be implemented by Empower New Haven, Inc., the nonprofit charged with implementing New Haven's Empowerment Zone program, and the Regional Workforce Development Board of Greater New Haven, with the Greater New Haven Chamber of Commerce assisting in employer outreach. The initiative would include:

Competitive Residents: Anticipated Outcomes

In three years with additional state resources, this strategy will expand local capacity to:

- Recruit and train inner-city residents for a full range of jobs in growing clusters, including 300 in New Haven call centers
- Involve corporate leaders in developing ***customized training programs for six clusters***
- Increase enrollment of inner-city residents at regional higher education institutions by 15 percent

- Improved access to regional jobs through the Regional Growth Connection, an existing transportation-to-work initiative
- Customized training for specific jobs identified by companies in the six clusters
- An enhanced “portable” Employee Assistance Program to ensure job retention

Immediate targets for this initiative are three call centers (SNET, DSL.net, FreshNex.com) now being planned for the region. To enhance career and educational choices for inner-city students, the Advisory Board also recommends a focused effort by Higher Education to assist in college preparation and financing, particularly in technical and science careers.

In the **intermediate term**, business leaders in the six clusters will work with New Haven's higher education institutions to align curricula with cluster skill needs, define career pathways, and improve access to certificate, Associate, and Bachelor's programs. The cluster advocates will work to enhance the local applicant pool through broader employer engagement in high school counseling and career awareness programs.

In the **longer term**, the Advisory Board recommends the formation of a broad private sector, cluster, and community leadership team to support K-12 education reform, including vocational technical schools. The Advisory Board hopes to engage higher education institutions in existing literacy initiatives, school-to-career partnerships, teaching of teachers, leadership training, and technology partnerships.

Conclusion

Through this initiative, New Haven has achieved a strategic vision and action plan for building inner-city competitiveness and economic strength. This strategic vision is rooted in careful analysis of the business clusters that will drive economic prosperity. The strategy includes action steps to address the crosscutting issues affecting cluster growth and identifies organizations to lead the implementation of these strategies. The next step will be to move the strategies into implementation and track progress.

The Advisory Board seeks the following State resources to support implementation:

- **Cluster Infrastructure**

- \$250,000 for regional cluster activation; \$100,000 per year for the next two years for maintenance
- \$500,000 for launch of New Haven Business Connection; \$250,000 per year for next two years for operation
- Significant tax credits for information technology infrastructure improvements

- **Crosscutting Issues**

- \$3 million per year for next three years for remedial job readiness and customized job skills training
- \$2 million fund for inner-city site remediation
- A fund to develop speculative bio-technology space

Table ES-2: Crosscutting Issues, Sustaining Institutions, Strategies, and Report Card Measures

Area	Sustaining Institution(s)	Principal Strategies	Scorecard Measures
Workforce	Empower New Haven/Reg. Workforce Dev. Board with Chamber	<ul style="list-style-type: none"> – Implement job readiness/customized training initiative working with cluster leadership* – Expand career exposure and preparation efforts in local high schools through school-to-career initiatives – Work with higher ed institutions to align curriculum with clusters 	<ul style="list-style-type: none"> – Programs offered – Companies engaged – Job placements retention/wages – Educational achievements
Business Services/ Access to Capital	Private Sector Leadership Structure	<ul style="list-style-type: none"> – Create umbrella entity, New Haven Business Connection, to focus and expand business services for improved results* – Develop strategies to improve access to capital 	<ul style="list-style-type: none"> – Number of businesses served by type, sector, and size – Business formation – Job creation/retention
Sites	Regional Growth Partnership/City	<ul style="list-style-type: none"> – Identify and prioritize city brownfields* – Move sites through process of study, clean-up and reuse* 	<ul style="list-style-type: none"> – Site assessments completed (Phase 1 and 2) – Number and acreage of sites under development, by stage – Development completed (square feet, jobs)
Security	City with Empower New Haven	<ul style="list-style-type: none"> – Deepen Community-based Policing – Designate business ombudsman in the Police Dept. – Develop trusted “scorecard” 	<ul style="list-style-type: none"> – Neighborhood scorecard – Crime rates
Cost of Doing Business	City	<ul style="list-style-type: none"> – Financial Incentive for inner-city investment* – Streamline local permit processes 	<ul style="list-style-type: none"> – Incentives enacted – Number of companies accessing each existing and new incentive – Streamlining of permitting process completed
Cluster Leadership	Private Sector Leadership Structure	<ul style="list-style-type: none"> – Define focused cluster agenda through continued planning process* – Define role of champions* – Recruit champions where applicable – Support implementation of cluster agendas* 	<ul style="list-style-type: none"> – Focused cluster agenda defined – Focused cluster leadership structure in place – Support structure in place

* Areas in which State investment is sought.

I. PROJECT OVERVIEW

Project Mission and Team

In January 1999, the Governor's Council on Economic Competitiveness and Technology (Competitiveness Council) launched the Connecticut Inner City Business Strategy Initiative. The Initiative's mission is to further local efforts and devise an overall strategy for inner-city economic revitalization in five target cities: Bridgeport, Hartford, New Britain, New Haven, and Waterbury. By identifying opportunities for business growth and changing perceptions of the inner city, the Initiative seeks to increase economic opportunities for inner-city residents.

To implement this project, the State Department of Economic and Community Development (DECD) and the Competitiveness Council partnered with the Initiative for a Competitive Inner City (ICIC), a national not-for-profit organization founded in June 1994 by Harvard Business School Professor Michael E. Porter. ICIC's mission is to spark new thinking about economic opportunities in America's inner cities, thereby creating jobs, income, and wealth for local residents. The ICIC approach to inner-city revitalization emphasizes the creation of sustainable communities through for-profit business development and often-overlooked competitive advantages.

From June to December 1999, business, civic, and community leaders in New Haven and the other four cities have worked closely with ICIC to assess their inner-city business base and create action-oriented growth strategies. The project's strategic vision is based on the following three interlocking determinants of inner-city competitiveness:

1. **Competitive Industries:** A base of strong and growing businesses
2. **Competitive Cities:** A business environment that facilitates growth
3. **Competitive Residents:** A workforce prepared to take advantage of new economic opportunities

The project specifically focuses on New Haven's inner city and neighborhoods in adjacent towns of West Haven and Hamden that are similarly characterized by high levels of unemployment and poverty and a low median household income. In order to generate sustainable economic development in this area, the project focuses on the following goals:

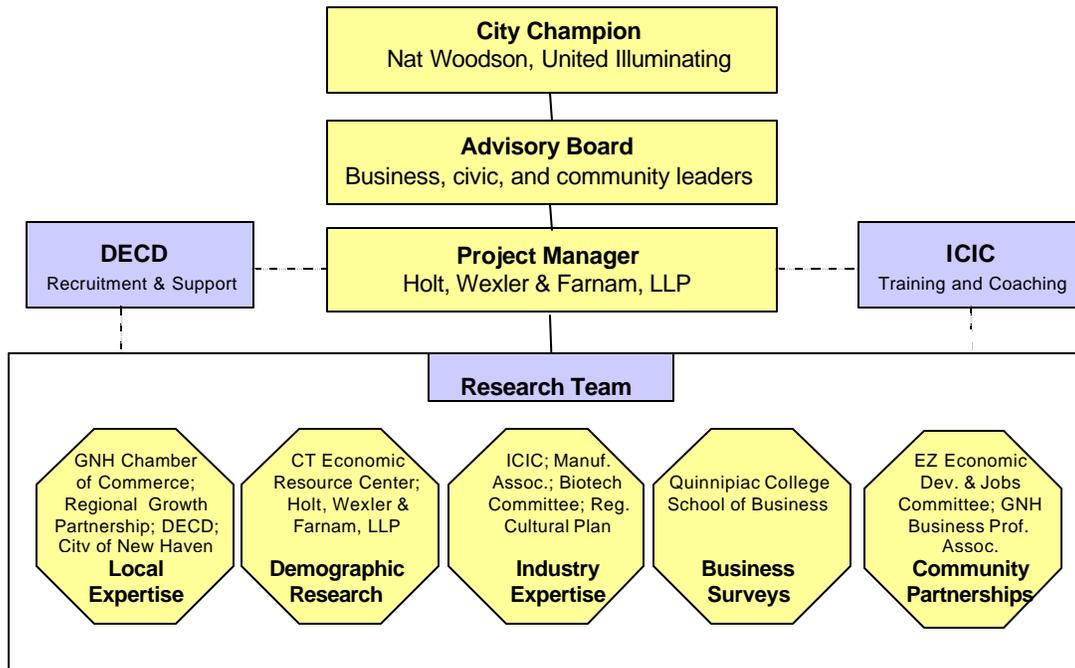
- Making the area competitive as a business location
- Building on its existing business base
- Integrating the area into the regional and national economy

In New Haven, the project was directed by an Advisory Board composed of 25 business, government, and nonprofit leaders. Nathaniel D. Woodson, Chairman of The United Illuminating Company, led the Advisory Board as the City Champion. The Advisory Board oversaw the work of the Research Team.

The Research Team included representatives from the City of New Haven, Greater New Haven Chamber of Commerce, local universities, the New Haven Empowerment Zone Program Council, DECD, the

Connecticut Economic Resource Center (CERC), and other organizations. Holt, Wexler & Farnam, LLP, served as the Project Manager. A complete list of New Haven’s Advisory Board members and Research team list can be found in Appendix 1.

Figure 1: New Haven Project Team



The Project Team proceeded by:

Identifying the inner-city study area (Section I.B.)

Identifying the clusters that will drive the regional economy and will create business opportunities in the inner city (Section I.C.) and identifying the current economic development context (Section I.D.)

Identifying crosscutting issues emerging from the interview data and local experience (Section I.E)

These steps are detailed in this section. Based on this research, the Advisory Board moved to develop strategies to support cluster growth and ensure that the inner-city economy and residents participate in this growth. These strategies are detailed in Section II (clusters) and Section III (crosscutting issues).

New Haven’s Inner City

The Greater New Haven region is defined differently for different purposes. Most of the

Figure 2

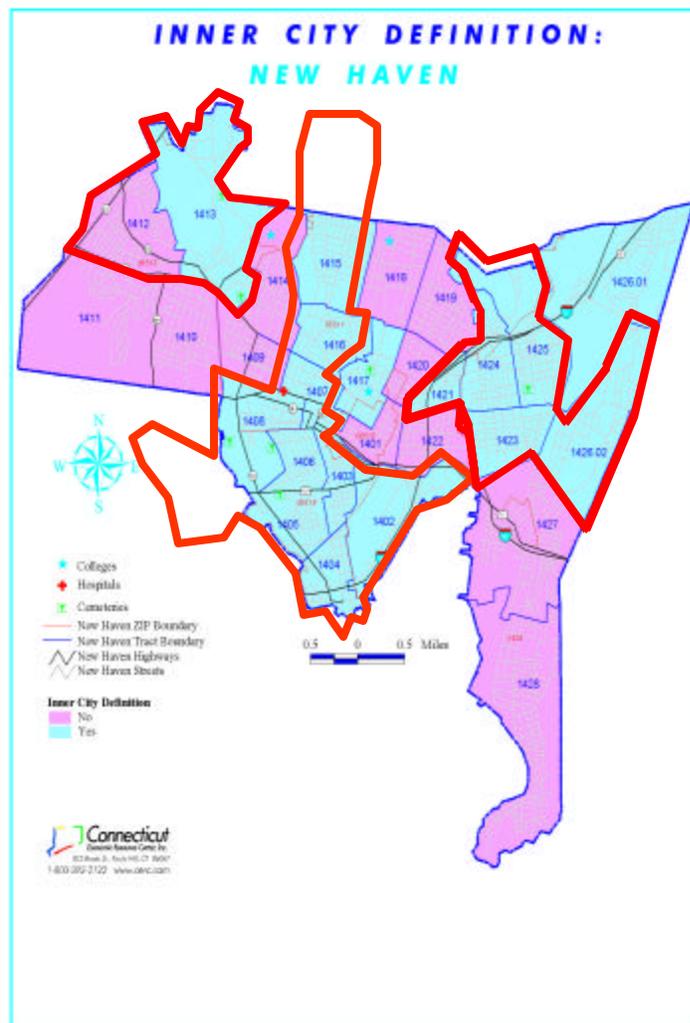


data used in this study is based on the 14-town Labor Market Area (LMA).¹

The inner-city study area is indicated in census tracts that meet at least two out of three of the following characteristics:

- Unemployment rate is 25 percent higher than the LMA unemployment rate
- Median Household Income is 75 percent lower than the LMA Median Household Income
- Poverty rate is 50 percent higher than the LMA poverty rate

Figure 3

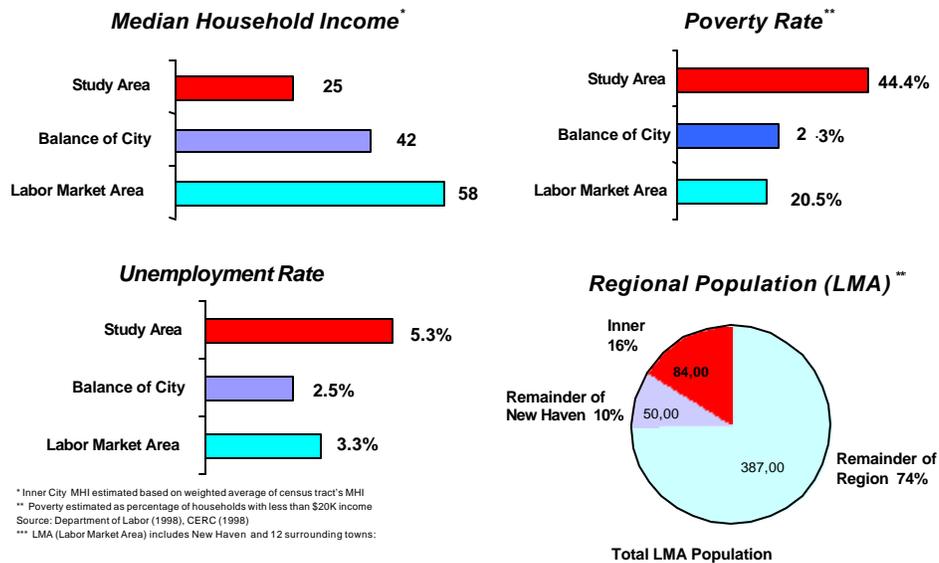


The area designated as New Haven's inner city represents 17 percent of the Labor Market Area population and 56 percent of New Haven's total population. Therefore, the economic health of the inner city significantly impacts that of the city and region. Given the demographic characteristics of New Haven's

¹ The LMA includes Bethany, Branford, Cheshire, Clinton, East Haven, Guilford, Hamden, Killingworth, Madison, Meriden, New Haven, North Branford, North Haven, Orange, Wallingford, West Haven, Woodbridge. The Regional Workforce Development Board's Service Delivery Area less Cheshire, Killingworth, and Meriden. The South Central Connecticut Council of Governments region is the Labor Market Area less Cheshire and Clinton plus Milford.

inner city, targeted economic development in these neighborhoods is critical. Unemployment and poverty rates are double those in the rest of the city, and median household income in the inner city is \$12,000 less than the rest of the city. Education and skill levels are also significantly lower in the inner city, with fewer residents gaining college degrees and skilled positions than in surrounding areas.

Figure 4
New Haven Region's Inner City Compared to the Surrounding Area



The inner city labor force represents both a challenge and an opportunity:

- An estimated 13,700 families live in poverty due to unemployment and underemployment.
- In an estimated labor force of 34,000, 5.4 percent are unemployed (1998) (not including discouraged workers and non-participants).
- An estimated 40 percent of the adults over 25 years old lacked high school diplomas in 1990. In some New Haven census tracts, over half of the labor force lacked high school diplomas. The pattern continues with a 40 to 50 percent drop-out rate for high school students entering ninth grade at the two comprehensive high schools.

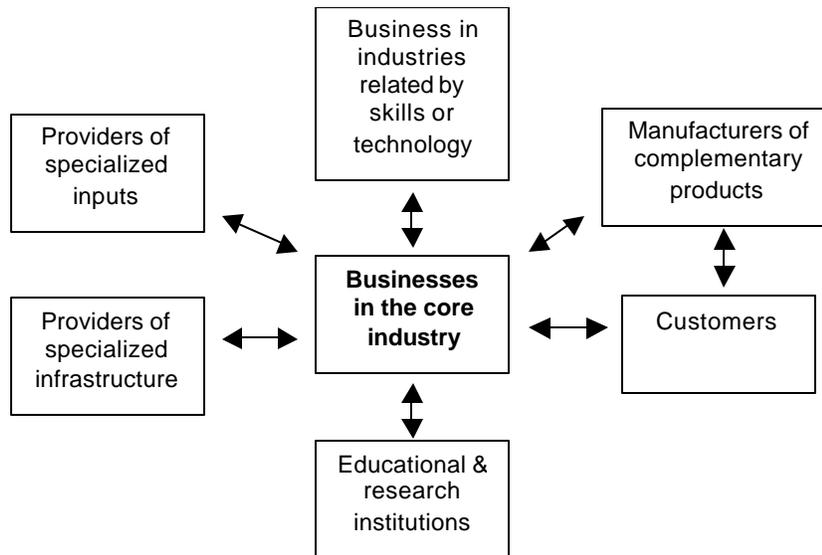
This basic skill profile in the face of an increasingly demanding workplace and a tight labor market led the Empowerment Zone planners to focus on increasing job readiness training and improving linkages to the regional economy as primary strategies for inner-city action.

Overview of Regional Clusters

A unique aspect of this project's approach to inner-city economic development is its focus on business

clusters. A business cluster is a group of companies and related institutions involved in the same technology or market that are located close to one another. Clusters generally include the categories of businesses depicted in the following diagram.

Figure 5: Cluster Model



Clusters can be used as a framework to stimulate business formation and growth, help attract new companies to an area, and encourage retention among companies who benefit from the cluster's presence. Working through clusters can benefit individual companies through cluster-based employee training initiatives, joint purchasing and negotiation, and shared learning and best practices.

The Research Team identified the core clusters in New Haven and their relative importance to the city's economy. Cluster selection was based on the following criteria:

- Major economic engine of the city and the region
- Significant growth potential
- Workforce needs match inner-city skill base
- Derives competitive advantage from an inner-city location

Based on this analysis, the Advisory Board ultimately focused on six target clusters: knowledge-based industries (including education, biotechnology, information technology, and health services); arts, entertainment & tourism; manufacturing; commercial services; construction; and retail/distribution. These clusters show strong regional growth potential as well as a strong potential to create jobs, income, and wealth in New Haven's inner city.

Table 1 quantifies total employment in each cluster in New Haven County along with projections of

employment growth in each cluster.² The industry sectors included within each cluster were based on guidance from the ICIC cluster model and the ICIC project team. According to CERC/RFA forecasts, the six clusters studied comprise 66.6 percent of the county employment and are projected to grow by 40,000 jobs by 2020, or 16 percent, slightly faster than the county as a whole. The projected drop in the biotechnology cluster does not reflect the recent dynamism in that cluster, and may reflect the model's reliance on past trends to predict future growth.

Table 1: Summary of Employment and Gross Domestic Product by Cluster, New Haven County, 1999 and Employment Projection to 2020

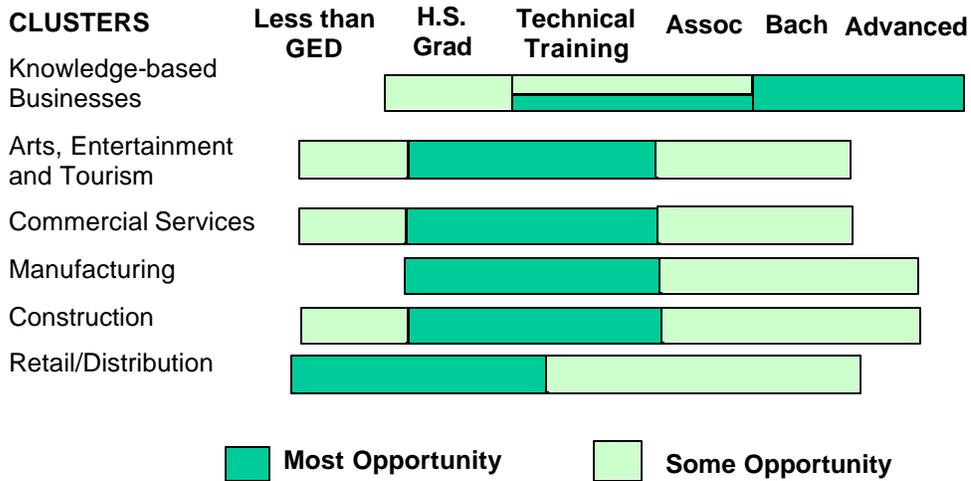
Cluster	Total Employment	% of County	Total Gross Domestic Product	% of County	Projected Employment, 2020	Projected Employment Change, 2000-2020
	(thousands)		(millions)		(thousands)	
Knowledge-based businesses						
Higher education & related	23.99	6.3%	1,232.3	5.5%	28.24	17.7%
Biotechnology	9.99	2.6%	988.1	4.4%	9.67	-3.2%
Information technology	20.03	5.3%	3,152.4	14.1%	22.89	14.3%
Subtotal	54.01		5,372.8		60.80	
Arts/Entertainment/Tourism	28.38	7.5%	818.6	3.7%	33.37	17.6%
Manufacturing						
Manufacturing, metal and related	31.50	8.3%	2,833.3	12.7%	28.57	-9.3%
Manufacturing, Other	17.55	4.6%	1,299.1	5.8%	18.64	6.2%
Commercial services	23.42	6.2%	1,140.6	5.1%	26.09	11.4%
Health	49.30	13.0%	2,074.2	9.3%	76.63	55.4%
Construction	12.98	3.4%	727.0	3.3%	9.54	-26.5%
Retail/distribution	35.09	9.3%	1,051.5	4.7%	39.20	11.7%
Total, Clusters Studied	252.23	66.6%	15,317.2	68.7%	292.84	16.1%
Total, County	378.80	100.0%	22,288.8	100.0%	430.01	13.5%

Source: CERC / RFA Forecast, 1999

² We present county data here as this is the only level at which projections are available through the State's econometric model.

As Figure 6 shows, all of the clusters analyzed offer a range of employment opportunities appropriate to the diverse skill levels of the inner-city workforce.

Figure 6: Clusters Span All Education Levels



In each of these clusters, the Advisory Board and Research Team identified opportunities and strategies geared toward general cluster growth and inner-city business growth and job creation. A description of opportunities and strategies by cluster follows in Section III.

The Regional Economic Development Context

Recent progress in local and regional economic development has laid the groundwork for this initiative. In recent years, New Haven and the region have made a significant investment in planning and implementing urban economic development projects. In January 1999, a portion of the city was designated an Empowerment Zone based on a strategic plan submitted to the federal government.

Within the city, economic development projects focus on redeveloping New Haven's downtown and vacant, underutilized industrial land, improving the quality of life in the Empowerment Zone neighborhoods, and preparing the city workforce to compete in the labor market. Regionally the focus has been on specific development projects and creating an infrastructure to support economic development, including transportation (roads, the airport, and trains) and cultural facilities. The Research Team prepared an exhaustive inventory of development and infrastructure investments (recently completed, pipeline, and planned) that approached \$6 billion in value. While many projects are moving ahead, not all are funded. Many are still moving through a detailed planning process before proceeding.

The inner-city strategy development process has brought new data and private sector perspectives this efforts to ensure that this activity will result in real opportunities for job, income, and wealth creation in the inner city and that strategies advanced are firmly embedded in the marketplace. Business and workforce development programs targeted toward the inner city will increase the impact of the city's and region's economic development efforts. While the Empowerment Zone Strategic Plan provides the beginning of a roadmap in the areas of workforce and business services, the New Haven Inner City Business Strategy has strengthened the link to the private sector through its focus on clusters. Current initiatives are discussed in Sections II and III as they relate to cluster strategies. The Advisory Board worked to ensure that this study process build on and focus current economic development efforts while remaining open to new directions emerging from the business survey and planning process. Some of the major ongoing initiatives that figure prominently in the clusters discussed here include:

- The Empowerment Zone Strategic Plan with comprehensive goals in workforce, job creation, and neighborhood development
- The ongoing efforts to grow the biotechnology cluster, which is centered in the region, in partnership with the statewide cluster effort headed by CURE, Inc.
- An arts & entertainment initiative involving implementation of the recently completed Regional Cultural Plan, an associated facilities study, and an Arts Institution Stabilization plan involving 10 institutions
- An ambitious, multi-faceted downtown development effort involving an integrated plan for office, retail, residential, and cultural/entertainment development accompanied by aggressive marketing of the downtown as a place to work and visit
- The Galleria at Long Wharf Mall which is nearing final approvals
- Regional and city brownfields redevelopment plans
- An expanding array of business services and loan products offered through public and nonprofit entities

The ongoing challenge facing the city and regional communities is to refine and integrate these plans and move them forward into implementation. The strategies recommended in this action plan can move the clusters forward regionally and to increase the competitiveness of inner-city businesses, residents, and sites within this regional growth.

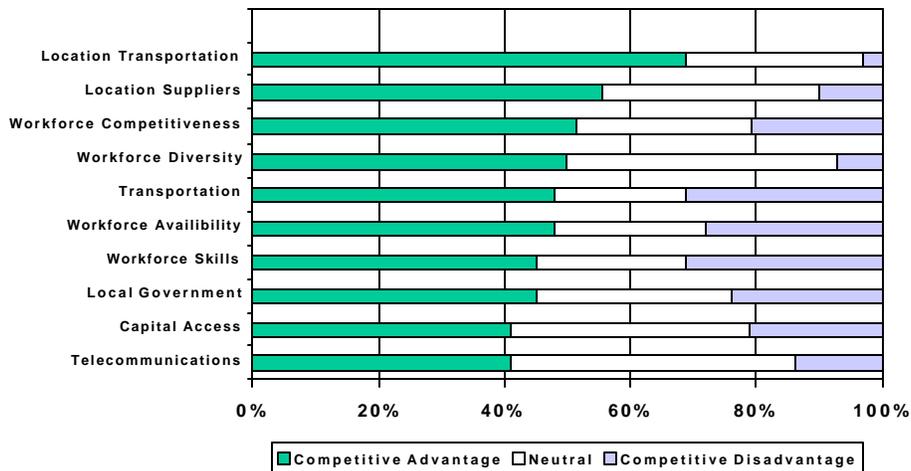
Competitive Advantages & Disadvantages

Through business interviews, the Research Team identified key competitive advantages and disadvantages of an inner-city location in greater New Haven. Fifty business interviews were held with inner-city company owners in the target clusters (see Appendix 2 for a list of companies interviewed). To better understand New Haven's business environment, these company owners were asked to rate various aspects of the business environment in New Haven as competitive advantages or disadvantages.

Strategic location and an available workforce were the top competitive advantages that New Haven business owners cited. In particular, New Haven's location at the crossroads of I-95, I-91, and Route 34 improves access to suppliers and customers, enabling businesses to respond to requests quickly. Proximity

to available workers has become increasingly important as companies compete in today's tight labor market. The business owners viewed their current workforce as a major advantage, but almost unanimously expressed frustration with the level of skills and readiness of the workforce applying for jobs.

Figure 7
Top 10 Competitive Advantages of New Haven Location



Based on Data from Interviews with 32 Companies

8

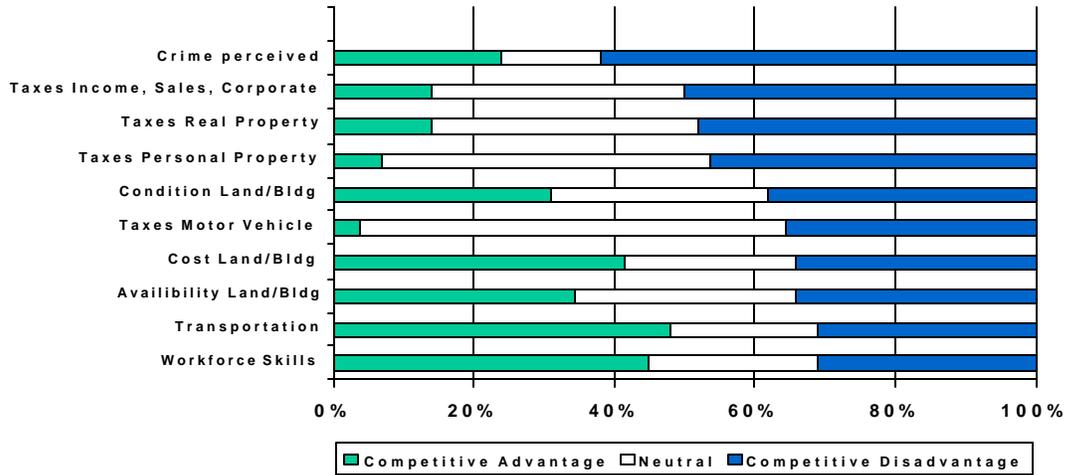
In contrast, crime and the high cost of doing business were cited by many company owners as competitive disadvantages to their location in inner-city New Haven (Figure 8). These numbers show that while crime remains an important issue to address, improving perceptions of New Haven is perhaps equally important in terms of business development. Most owners cited various state and local taxes as a significant issue. Some cited high utility costs.

These competitive advantages and disadvantages highlight potential opportunities for inner-city business development strategies. The responses pointed the Research Team toward strategies to leverage New Haven's competitive advantages:

- Target efforts to attract businesses toward companies that depend upon proximity to transportation, customers, and/or suppliers
- Identify opportunities to strengthen customer/supplier relationships that can benefit from New Haven's strategic location
- Build on the availability of labor by improving skills and productivity
- Develop strategies to improve perceptions of New Haven
- Offset the tax burden through increased business outreach and support and new targeted incentives

Based this analysis of competitive advantages and disadvantages, the Advisory Board identified six crosscutting issues that the region must address to unlock the potential of the six clusters.

Figure 8
Top 10 Competitive Disadvantages Cited
of New Haven Location



Based on Data from Interviews with 32 Companies

9

This assessment of New Haven's inner-city economy and demographics, regional business clusters, and inner-city and regional competitive advantages and disadvantages provided a critical basis for developing strategies for inner-city business growth. The next two sections analyze the six clusters and the six crosscutting issues in detail and identify the strategies and the sustaining institutions or processes that will advance them.

Table 2: Crosscutting Issues by Cluster

Crosscutting Issue	Knowledge-based Business	Arts, Enter. & Tourism	Commercial Services	Manufacturing	Construction	Retail/Distribution
Workforce	x	x	x	x	x	x
Sites	x		x	x		
Security	x	x	x	x	x	x
Business Services / Access to Capital	x		x	x	x	x
Cost of Doing Business	x		x	x	x	x
Cluster Leadership	x	x	x	x	x	x

II. New Haven's Clusters

Maintaining a cluster focus will help ensure that the strategies are embedded in the marketplace and integrated with the State's cluster development process. This section presents background data on each cluster, including on-going initiatives, and then discusses strategies grouped in two categories—cluster strategies aimed at growing the cluster regionally and those aimed at creating income and wealth in the inner-city economy.

Knowledge-Based Businesses

Knowledge and its creation, storage, use, and dissemination is the driving force behind the region's strong performance and/or potential in the biotechnology, information technology, higher education, and health services clusters. The Research Team decided to group these clusters together in one "super cluster" – knowledge-based businesses – because these clusters share many characteristics and requirements and would thus benefit from integrated strategies.

These clusters are driven by the presence of Yale University and the five other institutions of higher education in the region, a highly educated workforce, and cultural amenities and diverse living environments offering a high quality of life. This cluster is a major export industry for the region, bringing in substantial capital from outside the region in sales, investment, and tuition revenues. Its strength is also the basis for the region's opportunity to become a significant regional center of the "New (Knowledge and Technology-based) Economy" in the mode of Route 128 in the Boston Area, Silicon Valley, and Seattle.

The requirements for growth in these clusters have been studied extensively in recent years. The clusters' requirements center around access to the intellectual resources of Yale University, suitable, affordable sites and office spaces for new and growing companies, availability of capital, and an ability to create and/or attract and retain an educated and prepared workforce at all skill levels.³ The additional challenge for the inner city is to implement strategies that will increase the competitiveness of inner-city businesses, residents, and sites so that the benefits of the emerging "new economy" flow to them. The improvement of K-12 and technical education programs to equip all students with the knowledge and skills required for the more demanding labor market is one of the most critical challenges.

Key Players. Development of the knowledge-based clusters is in the hands of a broad range of public and private entities. Yale University, a global university with leadership in many fields, is the driving force behind this cluster and is a major contributor to the recent growth in both biotechnology and information technology companies in the region. Yale attracts over \$350 million in research funding. In the health sciences, Yale ranks among the top recipients in the nation of National Institutes of Health funding and Howard Hughes Medical Institute funding.

The three other private institutions, University of New Haven, Quinnipiac College, and Albertus Magnus, and two public institutions, Southern Connecticut State University and Gateway Community College, provide undergraduate and graduate education in a wide array of fields and draw students from the region

³ Regional Growth Partnership Report on Biotechnology, 1997; Dibner Report to Connecticut Department of Economic Development, 1997; Software/Information Technology Cluster Strategy, 1999.

and the Northeast. Southern Connecticut State University has the most students. Yale and Quinnipiac attract the highest proportion of students from out-of-state, while the remaining institutions draw from a more regional base of students. These institutions have a more direct role to play in preparing the regional workforce and providing continuing education for residents seeking to advance or change their careers.

All of these institutions contribute in major ways to the cultural life of the community through their galleries, performances, and cultural resources.

Additional partners involved in this cluster include:

- Connecticut United for Research Excellence (CURE), host to the state-supported bioscience cluster network
- Connecticut Technology Council, home to the state's software and information technology Cluster
- Yale New Haven Hospital, Hospital of Saint Raphael, and other health care providers
- Regional Growth Partnership (RGP)
- Greater New Haven Chamber of Commerce
- City of New Haven
- Regional Workforce Development Board
- New Haven's numerous entrepreneurial firms

The RGP has been active in supporting the development of facilities, particularly for the biotech cluster. RGP is also interested in working with the educational institutions to articulate a K-16 and graduate educational strategy in which each institution would develop its unique niches and regional employers would advise on emerging educational needs in their sectors. Along with the Chamber, the RGP will also play a role in marketing the area and addressing competitive disadvantages such as difficulties experienced in attracting and retaining the college-educated workforce essential to the success and growth of the field.

A leading force in technology transfer from the research lab to the private marketplace has been Yale's Office of Cooperative Research which works with entrepreneurs, corporations, and venture capital firms to facilitate the realization of the economic potential of new discoveries. This office has increased its activity in recent years and is regularly generating 4-5 start-ups per year based on research underway at Yale. The Enterprise Center, Inc. was recently established by Yale in partnership with The United Illuminating Company and New Haven Savings Bank to provide technical assistance to entrepreneurs.

The New Haven Advisory Board examined four key parts of the knowledge-based business cluster: higher education, biotechnology, information technology, and health services.

Higher Education

Composition

Higher education is a major economic engine of the region. The region's six institutions of higher education, led by Yale University, comprise an estimated five percent of the regional gross domestic product. These institutions have a combined total of 37,000 students, 13,500 faculty and staff members, and a combined budget of over \$1.4 billion (see Table 3 on the following page).

Table 3: Higher Education Enrollment, Employment, and Budget, by Institution, 1999

Institution	Undergrad Enrollment (full and part time)	Grad. Enrollment (full & part time)	Total Enrollment (full & part time)	Faculty & Staff	Annual Budget (millions)
Albertus Magnus College	1,416	253	1,669	305	14
Gateway Community-Technical College	3,981	445	4,426	192	16
Quinnipiac College	4,509	650	5,159	927	98
Southern Connecticut State University	7,445	3,995	11,440	1,350	85
University of New Haven	2,880	2073	4,953	490	54
Yale University	5,440	4,366	9,806	10,221	1,200
Totals	25,671	11,337	37,008	13,293	1,467

Source: Higher education institutions; Connecticut Department of Higher Education, 1999

The higher education cluster is a generator of research and ideas that drive new high technology and science-based business formation. It is also the center of workforce training for all the growing regional clusters. The higher education cluster is also important as an economic engine in its own right, generating substantial employment and purchasing.

In our increasingly knowledge-based economy, institutions of higher education emerge as major resources for propelling economic growth. They have multiple roles to play — in advancing the frontiers of research, in preparing youth and adult learners for careers in a wide range of fields, in supporting the growth of enterprises directly and indirectly, and in contributing to a high quality of life in the region.

The concentration of research and education institutions in the New Haven region is a critical competitive advantage in a global economy driven by the creation of knowledge and information. The higher education institutions of the Greater New Haven area have come together at the invitation of the City Champion to explore ways in which they can collaborate to accomplish the following objectives:

- Develop and implement strategies to support the health and growth of the higher education sector in the region.
- Increase the connections between the institutions and the regional economy and economic development process in the areas of program and curriculum alignment, business services, and entrepreneurial development.
- Engage the resources of the institutions in a systematic and integrated way to address the issues and opportunities for inner-city revitalization identified by the Inner City Business Strategy Advisory Board. These include business services, workforce development, educational improvement, and local business development.

Ongoing Initiatives

In preliminary meetings, representatives of the institutions have described the many areas in which they are working in institution-community partnerships to address the issues identified through the New Haven Inner City Business Strategy Initiative. Current efforts range from stimulating start-up, knowledge-based businesses, to mobilizing faculty and student volunteers in education, business services, and youth services, to scholarship programs for local residents.

Every institution is engaged. Yale has a number of strong community partnerships out of the Child Study Center and the Yale-New Haven Teacher's Institute, while Dwight Hall at Yale coordinates literally thousands of hours of volunteer time at hundreds of local agencies and schools. The University of New Haven has partnered with Bayer Corporation to provide scholarships in sciences to encourage more local students to enter the sciences. Quinnipiac partners with Betsy Ross Arts Magnet School to offer middle school students the scholarships. Southern Connecticut State University works with Hillhouse High School students in an innovative teacher preparation program. Gateway Community College partners with the Regional Workforce Development Board and BankBoston to offer entrepreneurial training to local business people. Albertus Magnus collaborates with the Newhallville neighborhood on a range of issues of mutual concern.

These institutions now have an opportunity to increase the scale and impact of these efforts by:

- Identifying areas of common work and opportunities for collaboration
- Structuring a more focused dialog with the community institutions on how to align their efforts with the needs of the community
- Providing comprehensive information on what is happening both within and across institutions and where the best entry points are for various types of activities

Strategies

The Advisory Board and institutional representatives have identified a number of promising strategies that offer concrete actions to accomplish the objectives specified above. In some cases, these initiatives build directly on the work that institutions are already doing.

The following options are suggested as near-term initiatives:

- **Higher Education Access Initiative.** Post-secondary education and training is becoming a pre-requisite for an increasing proportion of occupations. Expanding access to post-secondary opportunities for both graduating high school students and adults already in the labor market is thus a major objective of local school districts, employers, and community leaders.
- **Business School Partnership / Small Business Services Initiative.** The New Haven Inner City Business Strategy Initiative seeks to engage the four regional schools of management and business administration that offer undergraduate and graduate training in Management and Business Administration in providing technical assistance and other support to local business growth across a spectrum from micro-businesses to established small businesses experiencing growth. ICIC has established a National Business School Network that is developing new approaches to engaging business schools in supporting market-driven economic development processes in cities across the country. Opportunities include:

- Learning opportunities for business students with actual companies through a case or clinic mechanism
 - Mechanisms to provide one-on-one technical assistance to inner-city entrepreneurs
 - Research in direct support of economic clusters to build on the initial work of this initiative
 - Access to courses, workshops, and non-credit extended education opportunities for entrepreneurs and staff of local businesses
- **Purchasing Initiative.** The higher education institutions represent a significant market for local businesses. A conscious effort to identify local suppliers who meet quality and cost criteria of the institutions would retain a higher proportion of revenues to circulate within the region, creating a higher economic benefit. Yale University increased its local purchasing from local companies by 40 percent over five years through such an effort. This initiative would seek to engage the purchasing departments of all the institutions in a broader effort to make stronger connections to local suppliers with the goal of educating them as to the institutions' requirements, enabling them to access technical assistance to improve their businesses, and expanding local purchasing.
 - **Construction Services.** One specific area in which all higher education institutions are active is construction. Institutions will be invited to join the New Haven Regional Contractors' Alliance to expand opportunities for small minority and women-owned contractors in upcoming construction work.

Longer-term initiatives discussed by the representatives include the following:

- **Developing the Education Cluster.** This collaboration provides an opportunity for the higher education institutions to identify strategies through which the community can be engaged to support their institutional missions. Examples include efforts to expand employment opportunities for spouses of faculty, staff or graduate students; collaborate in course or program offerings across institutions; and enhance the student experience in the region to support recruitment efforts.
- **Aligning Curricula with Regional Cluster Needs.** The region's main economic clusters require a range of skilled labor to support their continued growth. Employers and private sector leaders have expressed a concern that educational institutions, from Kindergarten through graduate, are not keeping pace with the changing skill requirements in the marketplace. They have identified a need for a more systematic alignment of the curriculum and degree programs of the higher education institutions and the needs of the regional clusters.
- **Improving K-12 Education.** The NHICBSI interview process and broader discussions have identified the poor preparation of many high school graduates and the high drop-out rate as among the most pressing issues facing the inner city. The higher education institutions are in a position to champion and provide major support to a Literacy Initiative aimed at ensuring that every child stays in school and graduates high school with the full set of skills required to either enter the labor force or succeed in post-secondary programs. Many discrete efforts of varying complexity and intensity are currently in implementation, from the Comer School Development Program implementation to the literally thousands of student tutors at work in the schools. Areas identified by the higher education representatives included:
 - Mobilizing corps of additional tutors as part of the schools' literacy initiative

- Assisting the schools in developing career-focused high school programs such as the teacher preparation program at Hillhouse High School
- Expanded recruitment of college student mentors

The New Haven Public Schools have identified specific opportunities for the higher education institutions to become involved. These include:

- Improving the teaching of teachers, especially in the area of reading, science and math
- Leadership training for administrators and building leaders
- Technology partnerships: assistance in integrating technology into the teaching and learning process
- Distribution of volunteers and programs throughout the school system

Next Steps

The next step is to define specific areas within these strategies with the most potential for impact and to develop action plans for implementation. The most appropriate vehicle for ongoing collaboration on these matters must also be determined.

Biotechnology

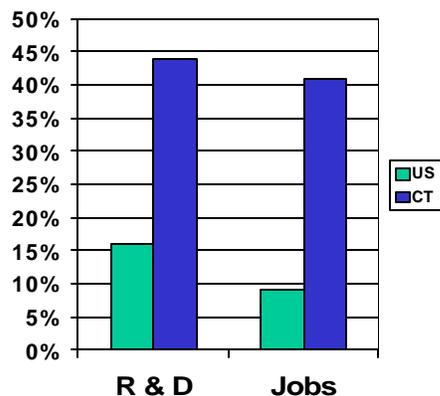
Composition

An integral component of the knowledge-based businesses cluster, the bioscience cluster (which incorporates biotechnology), was the first to be activated under the state cluster initiative. The cluster includes research activities at Yale and other universities, the larger pharmaceutical companies, smaller research and development companies, and the web of suppliers to those companies. The wider cluster includes the various firms and institutions supplying the industry, providing training services, and providing professional services.

Biotechnology Cluster

- Bio-tech firms
- Pharmaceuticals
- Suppliers (e.g. lab equipment)
- Professional services
- Universities

Figure 9: Growth in Biotechnology Research & Development and Employment in Connecticut Compared to U.S., 1998



Source: CURE Report, 1999

Context

The sheer volume of biomedical research underway at Yale and pharmaceutical companies Bayer and Bristol-Meyers-Squibb, the cluster's driving engines, positions the New Haven region as the major center for biotechnology expansion in Connecticut. Yale received the fifth highest level of National Institutes of Health funding in the nation this year and has twice as many top researchers supported by Howard Hughes Medical Institute as any other recipient.

Figure 9 shows the potential for economic growth in the State of Connecticut. Table 4 details a 42 percent growth in biotech research and development jobs in the last four

years (1995-1999) as measured by CURE in their member survey. The majority of biotech start-ups are in the New Haven region, many of which are located in the inner city. About 35 new start-ups based on Yale research have emerged in the last decade. Although in the early stages most positions at these start-ups require advanced degrees, these companies have identified a defined number of entry-level jobs that they have had difficulty filling. In addition, the research labs at Yale hire large numbers of lab workers with bachelor's degrees (estimated in 1994 at over 450 per year).⁴

In 1997, the RGP convened a major regional conference and study process, which established an agenda for developing biotechnology companies in the region. At the same time, the state conducted an analysis of the industry's needs. Availability of flexible, affordable lab space for start-ups was cited in both studies as one of the most urgent priorities to support continued company formation and growth. Both studies pointed to the need for a significant public sector role in the creation of lab space for this industry. Facilities in a variety of environments, both suburban campus and urban higher density, will be needed to attract and retain biotech companies in the region.

Table 4: Increase in Research and Development Employment, Connecticut Bioscience Cluster, 1995-1999

	1995	1998	1999	Growth 1998-99		Growth, 1995-99, %
				#	%	
Biotechnology Companies	295	682	780	98	14%	164%
Pharmaceutical Companies	4,760	6,228	7,197	969	16%	51%
Academic Institutions	3,400	4,000	4,043	43	1%	19%
Total R&D Employees	8,455	10,910	12,020	1,110	10%	42%

Source: CURE Report, 2000

Other issues include the need for financing, access to Yale intellectual resources, and the ability to find or attract a highly educated workforce. This third issue is directly related to quality of life issues, including affordable housing availability and cultural and entertainment opportunities. Finally, the studies cited a need for an organized public-private effort to address the impediments to growth and consciously market the state to biotechnology companies. The state has recently funded CURE to play this role, and New Haven regional companies are well represented on its Board.

⁴ "Neighborhood Employment Strategy," Appendix 4 to "Route 34 Biotech Park Development Plan," Science Park Development Corporation, 1994.

Ongoing Initiatives

RGP is leading regional efforts to spur the development of new lab space for start-up and early stage companies. Despite frustrating delays since the issue was first brought to the fore in 1997, progress has been made on several potential projects. In addition, RGP is working with biotech and IT human resource managers to attract and retain multi-degree job candidates.

On the workforce front, CURE and the Connecticut Department of higher education are studying the needs of the bioscience cluster and the availability of relevant higher education programs. Several of the region's higher education institutions have launched biotechnology programs. Gateway Community-Technical College developed a biotechnology certificate program (which has had some difficulty attracting students) and a program with West Hills Magnet School Program where 7th and 8th grade students work in Gateway laboratories twice per month and learn about science and technology related fields. The University of New Haven, in partnership with Bayer Pharmaceuticals, recently established a science and technology program that provides scholarship and internship opportunities for qualifying students. SCSU has recently added programs leading to qualifications needed to work in the biotech field.

Strategies

As described above, the two primary crosscutting issues that must be addressed to tap into the cluster's growth potential are workforce and sites. The New Haven Advisory Board recommends pursuing the following strategies for sustained inner-city and regional growth in this cluster:

- Restructure state funding to secure necessary funds to build speculative lab space. By adopting a long-term vision, New Haven could begin this work now to be ready for lab space needs 18 months in the future.
- Intensify college/career exposure and placement for local high school graduates with area high tech/biotech firms.
- Identify supply and contracting requirements of growing companies that could be met by local businesses and communicate them through the proposed business services network.
- Implement a multi-site Greater New Haven biotechnology strategy to promote the common interest in growth, facilitate joint marketing, and provide "identity branding" for high tech/biotech firms outside Connecticut. Potential sites include the original Science Park site in New Haven, the Sursum Corda site in West Haven, and the Quinnipiac River corridor sites in three towns.

Next Steps

With ongoing initiatives (e.g. active state cluster network, higher education institutions involvement in biotechnology workforce development.), the region is beginning to address the workforce needs of this cluster. A portion of the job training and education resources discussed below (Section III.A. Workforce) can be applied as customized training funds productively to preparing inner-city residents for specific entry-level technical jobs in biotech companies.

Adequate sites and lab space, however, remain primary obstacles to this cluster becoming a truly dominant force in the regional economy. To meet these needs, the New Haven Advisory Board is requesting additional assistance from the State for inner-city site remediation and development of speculative biotechnology space that is more appropriate for the needs of entrepreneurial ventures.

Information Technology

Composition

Information Technology (IT) is a major engine of growth in Connecticut and nationwide. Several IT start-ups in the New Haven area were interviewed for this effort, including DSL.net and Freshnex.com. SBC Communications, which purchased SNET, has made a major investment in providing high bandwidth Internet access to homes and businesses. Additional industries within this cluster include computer services and sales, software companies, and professionals providing services to the cluster.

Context

Connecticut ranks fifth in the nation on the Progressive Policy Institute's "New Economy Index," a measure of a state's advantage in the new (knowledge-based) economy (Table 5). Information technology is growing nationally, contributing more than one third of total economic growth between 1995 and 1998. Interviews with a number of information technology companies in New Haven reveal that there is some appeal to a New Haven inner-city location. Several growing dot.com and internet-related companies have recently located in the greater downtown area, bringing over 200 jobs to the city. They were attracted by the universities, the prospect of a highly skilled labor force, a fiber optic infrastructure that approaches the state of the art, and a location in a livable city half way between New York and Boston.

Over the summer of 1999, an ad hoc task force of company representatives and service providers formed the Information Technology Task Force to analyze the major challenges in the development of an information technology cluster in the Greater New Haven area and develop an agenda for growing and supporting the cluster in the region and in Connecticut. The report analyzed several important factors affecting New Haven's competitive position, such as the current information technology infrastructure, the regional labor market, funding and capital sources, and existing support services.

The Task Force concluded that Greater New Haven area is well-positioned to compete in the emerging new economy. Within its six institutions of higher education, New Haven is a center of knowledge and excellence that parallels other centers of the new economy, including Silicon Valley, Boston, New York and Austin, TX. The region has a competitive information technology infrastructure, and downtown New Haven is an attractive location. The challenge is to build on the existing elements of strength to support company attraction and expansion.

Challenges include preparing or attracting the skilled workforce necessary to support company growth and creating affordable high-bandwidth access to the Internet.

Information Technology Cluster

- Computer programming
- Internet service providers
- Computer services (retail and wholesale)
- Related professionals (e.g. attorneys)

Table 5
New Economy Index Rank

1 Massachusetts	82.27
2 California	74.25
3 Colorado	72.32
4 Washington	68.99
5 Connecticut	64.89
6 Utah	63.98
7 New Hampshire	62.45
8 New Jersey	60.86
9 Delaware	59.87
10 Arizona	59.23

Progressive Policy Institute, 1999

Strategies

The New Haven Advisory Board identified the following strategies to further enhance New Haven's competitive positioning:

- **Smart buildings:** The availability of space in affordable buildings offering high bandwidth Internet connections has the potential to attract new businesses and job opportunities to the inner city. A public/private partnership to create more smart buildings through incentives or direct grants is a way to accelerate growth in this sector.
- **IT Infrastructure:** To remain competitive in this industry, further research on infrastructure requirements is needed. Cluster leaders must investigate this question and work with the industry and economic development agencies to continually upgrade and market the quality of the infrastructure.
- **Technology incubator:** A strategy identified by the IT Task Force to foster growth of information technology in New Haven is the development of a “technology incubator.” Incubators have been used in cities throughout the country including San Jose, CA; New York, NY; Evanston, IL; and Springfield, MA in a bid to attract prospective high-tech entrepreneurs. In a technology incubator, a group of small and large IT companies inhabit a building wired for very high bandwidth (DS-3 capability) in order to allow for expandability in the future. The presence of these high level IT services will provide cost efficient support for entrepreneurs. This will also provide business opportunities for inner-city residents and entrepreneurs seeking to enter or to serve the IT cluster.
- **Workforce Development for IT:**
Retaining and attracting degreed workforce: In interviews, company owners expressed a concern about attracting and retaining the young, highly trained and mobile workforce essential for growth in the IT field. While over the longer term the objective should be to open these opportunities to inner-city graduates through improved technical education opportunities, there is a need in solve this problem in the short term through efforts to retain and attract graduating college and graduate school students in the state. Companies are working with state and regional private sector officials to address this question.

As next steps, Empower New Haven and the Regional Workforce Development Board are working to meet the needs of the call centers. The Chamber and RGP will be addressing the issues of higher-skilled workforce retention and attraction and the question of the adequacy of the IT Infrastructure. Incentives and funds will be sought to defray the cost of creating wired “smart buildings” in the inner city to address the demand of startup companies.

Health Services

Composition

The fourth component of the knowledge-based business cluster defined by the Research Team is health services. The health services cluster (see sidebar) is led by the two major hospitals in the region, Yale New Haven Hospital and the Hospital of Saint Raphael. The two hospitals are the largest employers located directly in the inner-city study area.

Health Services Cluster

- Health care providers, such as hospitals, nursing care facilities, home health facilities, dentists and doctors
- Medical supplies and equipment
- Services such as research centers and laboratories
- Practice groups
- Laboratories

Beyond these hospitals, the cluster includes several smaller hospitals, the V.A. Hospital and a nationally-ranked medical school, and a growing array of health services businesses. Home health care agencies, continuing care facilities, and nursing homes are major employers in this area. The cluster also includes the production and usage of surgical and medical devices.

Context

Although the health services cluster continues its difficult restructuring of institutions and jobs, overall employment continues to grow and demand for health services is projected to increase with the graying of the “baby boom” generation. Andersen Consulting analyzed the health cluster in-depth for the Hartford Advisory Board. Much of their analysis applies to the New Haven market, reinforcing a 1994 study of the health services employment situation commissioned by Science Park Development Corporation.⁵

Table 6 describes trends in the health care marketplace and their implications for the mission of this effort.

Table 6: Trends in Health Care

	Structure/Trend	Implication
Employment Opportunities	<ul style="list-style-type: none"> • Rise of preventive treatment driven by managed care and medical technology advancements has resulted in growth of outpatient settings • Increasing number of individuals aged 85 and older, the largest users of long-term healthcare services • Recent changes in Medicare reimbursement through Balanced Budget Act, including reduction in home health and long-term care 	<ul style="list-style-type: none"> • Increase in outpatient settings and growth of elderly segment creates employment opportunities for inner-city residents, particularly with home health care agencies
Business Development Opportunities	<ul style="list-style-type: none"> • Hospitals are the dominant inner-city business • Hospitals face continued consolidation and downsizing which is driven by excess capacity • Health care companies face increasing pressure to reduce administrative costs 	<ul style="list-style-type: none"> • Outsourcing commercial services functions provides opportunities for the development of inner-city supplier businesses • Group purchasing organizations may be a way for hospitals to improve competitiveness

Source: Andersen Consulting analysis, 1999.

The rationale for targeting health services includes:

- The cluster appears to derive a competitive advantage from city location. The city holds a significant share of the regional employment.
- Although there has been significant consolidation and downsizing in hospitals, this cluster is a significant engine of the regional economy.

⁵ Neighborhood Employment Strategy, Appendix 4 to the Route 34 Biomedical Park Proposal, Science Park Development Corporation, 1994.

- There has been historical growth, primarily in health plans and several care delivery areas such as home health care and nursing homes.
- Inner-city residents are filling these positions in suburban health facilities, with transportation assistance in some cases from the Regional Growth Connection.
- Entry-level positions in home health services, hospitals, nursing and personal care facilities are growing in this cluster (Table 7).

Although health is a major sector, there has been no recent regional public/private effort to engage the health services cluster in coordinated action, be it job training for inner-city residents or local supplier development.

Strategies

The Advisory Board did not explore detailed strategies to build the health services cluster regionally, but such an effort should be on the agenda of a regional economic development plan.

In terms of the inner-city agenda, there are cluster-based opportunities primarily in the workforce development area.

The RWDB and ENH should work with the two hospitals and with other employment centers within the health industry (home health agencies, continuing care facilities) to develop demand-driven training for specific job categories. Given the skilled nursing shortage, this effort should include working with area health and higher education institutions to define career pathways for health workers showing aptitude for higher level work.

In the area of business services, there is an opportunity to increase local purchasing by health institutions using the experience of Johns Hopkins Medical Center in Baltimore and Yale University’s “Buy New Haven” efforts as models (see Section II.A.1. on the higher education cluster).

Next Steps

Leaders in this industry have been briefed on the study process. The next step will be to reach out to the cluster leadership to broker partnership with ENH and the RWDB to pursue customized job training and placement programs geared to the cluster’s specific needs across skill levels.

Once the local purchasing initiative involving higher education institutions advances, health institutions can be approached to join the effort.

Table 7: Growing Health Occupations That Do Not Require Higher Education Degrees

Educational Requirements	Occupation	Projected National Job Growth '96-'02
Short-term training and experience	Home Health Aides	89%
	Personal and corrective therapy and aides	89%
Moderate-term training and experience	Physical and corrective therapy and aides	41%
	Medical Assistants	86%
	Occupational therapy assistants and aides	57%
Post-secondary vocational training	Dental Assistants	41%
	Licensed Practical Nurses	47%
	Emergency Medical Technicians	54%
	Medical Secretaries	39%

Source: US Department of Labor; Andersen Consulting.

Arts, Entertainment, and Tourism

Composition and Key Players

The arts, entertainment, and tourism cluster brings together an array of businesses and institutions that function as an interrelated economic unit (see sidebar). These entities have only recently begun to recognize their interdependence and come together around a more unified development agenda. The partners in these efforts are diverse:

- Regional Cultural Plan
- Mayor's Office/ City Plan Department
- Greater New Haven Convention & Visitors Bureau
- Greater New Haven Chamber of Commerce
- Arts Industry Coalition (trade group of institutions)
- The Arts Council of Greater New Haven
- International Festival of Arts and Ideas
- Long Wharf and Shubert Theaters
- Town Green Special Services District (covering all of downtown)
- Empower New Haven, Inc.
- United Merchants Association
- Market New Haven, Inc. (a new nonprofit being established to market New Haven and the downtown area in particular)
- Office of Cultural Affairs
- New Haven Veteran's Memorial Coliseum
- Local Media - WTNH, NH Register, NH Advocate

Arts, Entertainment, and Tourism Cluster

- Arts institutions & organizations
- Art schools
- For-profit entertainment
- Architectural services
- Eating & drinking places
- Hotels
- Related professional services (advertising, law)
- Taxi services

Context

New Haven enjoys a strong reputation as a center for arts, culture, and entertainment. From the distinguished museums at Yale, to the Shubert Broadway Series, to countless individual artists and local performance groups, the city has a far greater share of artistic and cultural organizations, activities, and performances than many cities several times its size. The Ravens baseball team, a double "A" affiliate of the Seattle Mariners, makes its home at Yale Field. The Pilot Pen International Tennis Tournament brings world-class women's tennis to the Connecticut Tennis Center each August.

One of the great strengths of New Haven's cultural scene is the quantity and concentration of existing cultural activities. This includes not just the broad range of programming at the Shubert and Palace Theaters, but also a number of diverse and important commercial venues, from jazz music at BAR and Café Nine to rock at Toad's Place. This diversity is important because it provides a significant base upon which the city can build. The wide range of art and entertainment options attracts visitors and residents

from diverse economic and ethnic backgrounds, providing a true urban cultural experience. This adds tremendously to the area's quality of life, critical to the social and economic health of the entire region. It is what sets New Haven apart. Development in this category involves investing in the city's cultural community system as opposed to just individual organizations.

To capitalize on this potential, the city and private sector leaders have sponsored a series of planning studies designed to grow the arts, entertainment, and tourism cluster as both an economic engine and a cultural asset that will help attract knowledge-based businesses and the highly-skilled workforce that these businesses require (Table 8).

Table 8: Planning Studies in Support of the Arts, Entertainment, and Tourism Cluster

Study	Description
Regional Cultural Plan for Greater New Haven, under implementation through the Arts Council of Greater New Haven (1998).	Analysis and recommendations for developing region's cultural organizations, facilities and resources. Implementation includes a neighborhood cultural development element.
Arts Facilities Study, sponsored by City of New Haven, and funded by State of Connecticut (underway; expected completion, Spring 2000).	Feasibility study to address facilities-related issues for five of New Haven's largest arts and entertainment venues. Includes market and trend analysis for the industry and economic impact analysis.
Strategic Marketing Plan for Downtown, sponsored by City of New Haven, Yale University, and Regional Leadership Council (2000).	Recommends a comprehensive effort to expand arts and entertainment programming in the downtown area and market attractions to a wider audience. Supported by 1998 Quinnipiac College poll regarding downtown.
National Arts Stabilization Financial Analysis, sponsored by Regional Cultural Plan (ongoing).	Developing strategy to stabilize long-term financial position of 10 arts organizations.
Ernst & Young Downtown Retail Strategy (2000).	Study of development of downtown New Haven relative to Long Wharf Mall. Proposes a number of development concepts that will now be considered for next level of study.
Expanded Conference Space Study, jointly funded by Convention and Visitor's Bureau, City, Town Green Special Services District, and Yale (ongoing)	Study of options and market for expanded exhibition and conference space.
Zimmerman/Volk Associates, Inc. residential market analysis (1999)	Study of downtown residential market indicating strong demand for additional downtown housing.

These studies build on the recently published Regional Cultural Plan. A goal of these efforts is to develop or attract the many "support" facilities that grow up around healthy arts communities. These would include living/working spaces for artists and for-profit businesses that supply the industry, such as sound

and video production and suppliers of musical instruments and sheet music, as well as bookstores, cafes, galleries, boutiques, gift stores, and restaurants.

Other significant developments related to this cluster include:

- A new *School of Art* at Yale, housed on Chapel Street in the former Jewish Community Center, representing an investment of \$22 million
- \$85 million in other new and renovated Yale facilities to support a major new focus on arts in the next decade
- A number of new downtown restaurants (including Zinc, Roomba, Tibwin, and Polo Club)
- Proposed renovation and expansion of facilities at Raven's Field to create new and improved retail and concession spaces, ticket windows and luxury suites
- A new program of public art sculptures enhancing various entry points into the downtown area
- Artists housing in the 9th Square is proposed to expand residential opportunities for artists downtown and offer live/work spaces not currently available
- A new facility for Long Wharf Theatre to replace its existing performance space
- Continuing improvements to the Veterans Memorial Coliseum

The challenge facing the cluster going forward is to develop a unified development agenda with strong support from cluster, other private sector, and community leaders. The challenge from the inner-city community perspective is to ensure that residents and businesses have full access to the employment and business development opportunities that emerge.

Issues that must be addressed include the high price for expansion of cultural facilities, economic stabilization of the region's cultural institutions, promotion of the cluster, and workforce issues.

Strategies

The principal strategies designed to build the cluster include:

- Complete the various studies in a coordinated way and develop a unified agenda, strategy, and vehicle for advancing them.
 - Reach consensus on physical plan for arts facilities improvements.
 - Secure funding for agreed-upon construction/rehabilitation.
- Secure funding for \$5 million National Arts Stabilization Project to assist 10 major arts organizations with budgets, reserves, and endowments.
- Fund and implement marketing for new/expanded audiences.
- Encourage cross-promotions between tourism and the arts.
- Seek capital support for major investments in arts institutions over the next few years

The principal strategies designed to link the cluster to the inner-city economy include:

- Develop a cluster-specific workforce initiative under the Empower New Haven customized training program (described in Chapter III).

- Form industry-based committee to develop new apprentice program in technical and production side of theater, concerts and gallery exhibitions.
- Build participation and business skills in neighborhood-driven arts organizations and among neighborhood artists.
- Develop database of service businesses for use by cluster organizations and identify commercial services opportunities that can be promoted through the business services effort (described in Chapter III). A prime opportunity is vending and catering in the food industry.

Next Steps

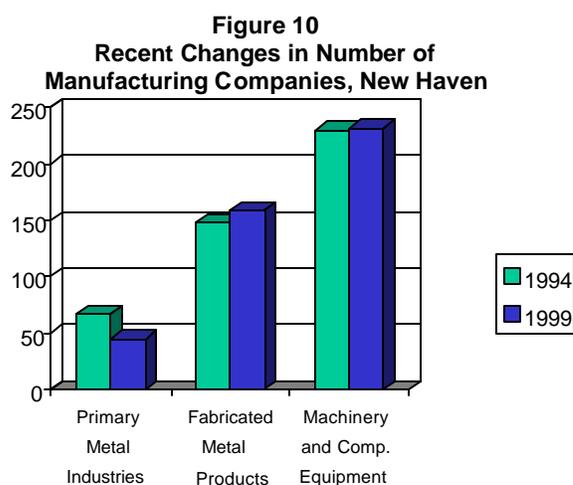
The cluster leadership drawn from the component parts of this cluster needs to be organized to develop a common agenda of projects that the private sector and community will support. The vehicles for ensuring that the development of this cluster includes the inner city are the sustaining institutions in workforce development and business services as well as the Regional Cultural Plan's neighborhood cultural development initiative. The specific next steps are for these entities to work with cluster leaders to define the specific relationships and initiatives to make these economic connections.

Manufacturing

Composition and Key Players

The manufacturing cluster plays a critical role in New Haven's regional economy. In 1999, Dun & Bradstreet listed over 1,400 manufacturing companies in the region, employing over 51,000. A number of manufacturing subclusters were examined during the study, including metal manufacturing and food processing. The metal manufacturing component includes metal manufacturers, electronic components, machine shops, and related industries, which together employ over 18,000 people in the region. Other components of the cluster include suppliers to manufacturing companies, training providers, and professional services businesses.

The Manufacturer's Association, an organization of local manufacturers, is taking the lead in meeting the needs of the cluster in the New Haven region. The Association is staffed by the Greater New Haven Chamber of Commerce and is working in partnership with the City's Office of Business Development to address the cost of doing business and site availability. The RWDB, Gateway Community College, and Empower New Haven assist the cluster through workforce development initiatives. Recently, the Association also approached ConnSTEP about obtaining technical assistance from the state to better address the needs of manufacturers in New Haven.



Source: Dun & Bradstreet

Context

Nationwide growth in manufacturing is attributed to small manufacturers.⁶ According to the National Association of Manufacturers, small manufacturing firms created almost one million new jobs between 1992 and 1996. Between 1987 and 1992, small manufacturers had a net increase in employment of 1.7 million employees while large manufacturing firms saw a net decrease of 2.1 million employees. Currently, small manufacturing firms supply parts and equipment that account for 55 percent of the value-added content of finished products, as compared to 49 percent in 1987.⁷

Overall manufacturing employment in New Haven County has suffered a substantial long-term decline of 42 percent since 1970, a decrease in share of total employment from 41 percent to 20 percent. During this period, however, the percent of county gross domestic product attributable to manufacturing has remained nearly constant at about 22 percent due to continuing productivity gains and automation. Employment has stabilized recently and is projected by the state Department of Labor to increase between 1996 and 2006.

Table 9 presents Dun & Bradstreet data for Greater New Haven by type of manufacturer for 1994 and 1999, showing healthy employment and sales growth in durable goods manufacturing and a 15.8 percent overall growth in manufacturing employment. This data does not reflect the layoffs at Pratt and Whitney Aircraft, however. Figure 10 depicts the changes in employment that the sector has experienced statewide over the last five years. Manufacturing industries have some of the highest direct and indirect impacts on the local economy. In 1999, according to Dun & Bradstreet data, manufacturing represented 19 percent of the regional employment base and fully 35 percent of gross regional revenues.

Table 9: Manufacturing Employment in Greater New Haven, 1994 and 1999

Sectors	1999			1994			% Change, 94-99	
	Businesses	Employees	Sales	Businesses	Employees	Sales	Employ.	Sales
Non-durable Goods	557	12,556	1,584	615	13,490	1,514	-6.9%	4.6%
Durable Goods	846	39,104	10,589	874	32,420	7,715	20.6%	37.2%
Manufacturing, Region Total	1,403	51,660	12,173	1,489	45,910	9,230	12.5%	31.9%
All Industries, Region Total	24,456	275,768	34,998	21,555	238,071	31,898	15.8%	9.7%
Manufacturing as % of All Industries	6%	19%	35%	7%	19%	29%		

Source: Dun & Bradstreet Marketplace, provided by Greater New Haven Chamber of Commerce.

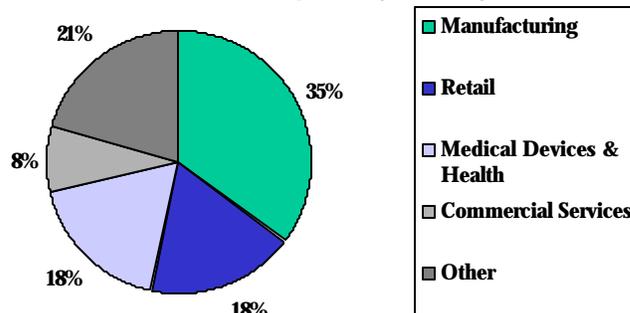
⁶ Defined by the National Association of Manufacturers as companies with under 500 employees.

⁷ Expressed in dollars (not items), value-added is the difference between the value of goods produced and the cost of materials or supplies that are used in producing them. Value added is one way to measure the relative contribution of different enterprises to the final product.

Seven regional manufacturing sectors have location quotients greater than one, meaning that these industries have a higher concentration of employment as a percentage of the total local economy than their sector nationally.

Interviews for this planning effort focused on metal and primary metal manufacturing clusters, which were identified by the ICIC and CERC studies as having high growth potential.

Figure 11: Placements from Regional Growth Connection Participants by Industry



N=438 people hired from 2/98-9/99
Data for employers hiring 10 or more candidates

Interview responses reveal that the outlook for manufacturing is mixed. Employment is relatively strong, with most of the 16 firms interviewed for this study citing difficulty finding qualified candidates for a range of entry level and technical jobs. Among the 16 companies, a total of 133 entry-level openings were projected in the course of the next year, indicating a strong opportunity for a training and placement effort. There is a good fit with the skill levels and potential skill levels of the inner-city workforce. The Regional Growth Connection provides transportation assistance in the initial period of employment for new placements. In its first 17 months, thirty-five percent of those placed through the Regional Growth Connection program were in manufacturing occupations (Figure 11).

City and regional economic development staff report a strong demand for sites in the inner-city industrial areas. Manufacturers cite a relatively high cost of doing business in Connecticut as a significant competitive disadvantage. Surveys and interviews in both New Haven and Bridgeport indicate that small manufacturers need to upgrade technological capabilities, obtain marketing assistance, and diversify their product mix to remain more competitive. Shortages of skilled labor were cited as a major issue in both cities as well.

Strategies

Potential strategies emerging from this process include:

- Explore joining with the Bridgeport metal manufacturing network and Waterbury firms to expand the base of firms within the network
- Build the capacity of the Manufacturer's Association to develop and implement the cluster agenda
- Work with DECD statewide cluster efforts, including Aerospace Components Manufacturing Network (ACM) and other network organization
- Expand the RWDB/ Gateway / Manufacturers' Association sectoral training program to prepare more inner-city residents for manufacturing careers
- Market manufacturing careers in high schools to overcome outdated views of the field
- Expand the visibility and availability of Conn/STEP technical assistance in the region

Next Steps

The vehicle for retaining and expanding businesses in this cluster is the Manufacturer's Association of New Haven County. The next step is for this cluster group to develop a detailed agenda drawing on the work of the Advisory Board and Research Team, with a focus on expanding workforce preparation, addressing site and cost issues. Cluster activation will require matching public and private investments in staff and logistical support. Alliances with the Bridgeport or statewide manufacturing networks to work on joint projects should be pursued as well.

Commercial Services

Cluster Composition and Key Players

Another large and growing opportunity in New Haven is in commercial services. The commercial services cluster includes companies that meet operational needs of businesses and institutions.

These industries have been working alongside each other for several years. However, the opportunity for collaborative cluster growth is just beginning to be realized, as an increasing number of companies outsource their operational needs.

In addition to cluster company owners, the Greater New Haven Chamber of Commerce is a key actor in this cluster. The Chamber promotes networking among companies and has been charged with overseeing efforts to focus the technical assistance and other services that businesses need to successfully expand.

Commercial Services Cluster

Business services such as:

- Equipment leasing & maintenance
- Commodity inventory management
- Printing
- Facilities & waste management

Context

Commercial services are booming nationwide at a growth rate 50 percent faster than the annual GDP. In New Haven, anticipated growth in the five other clusters will greatly increase local demand for commercial services. This growth highlights a significant opportunity for New Haven's inner-city commercial services companies, entrepreneurs, and employees. Inner-city companies are positioned to compete for growing commercial services demand due to their proximity to urban customers and transportation routes.

Currently, New Haven regional commercial services companies generate an estimated total of \$1.1 billion in sales, about five percent of New Haven County's gross domestic product. The challenge is to assist regional and inner-city companies to increase their competitiveness to provide a growing share of this market, creating local jobs and wealth.

Strategies

A primary goal of the Advisory Board's recommendations is to make connections between the New Haven's clusters and local businesses. For example, the Higher Education purchasing initiative will connect the purchasing departments of the six area higher education institutions with local suppliers. This is

especially relevant to the Commercial Services cluster, in which potential business grows with increases in the level of exports from economic base industries. Thus, bolstering New Haven's other clusters will directly result in growth in commercial services, as these businesses provide inputs to these clusters. The business services program (see Section III. B.) would take on this function of making connections. Tactics focused on business services could include holding informational forums and networking sessions to make companies aware of new opportunities as well as a regional market exchange through a Web site.

The other primary business development strategy is to increase the quantity, quality, and ease of access to technical assistance and business services to equip local business owners with the tools necessary to expand their market share (see Section III.B).

Workforce needs in the commercial services cluster offer opportunities for customized recruitment and training programs targeting inner city residents. During the course of the study, three call center operations, with a projected total employment that could exceed 800 people in the next three years, came to the attention of the Advisory Board through the interview process. The location of these centers in or very near the inner city demonstrates that under the right circumstances, the inner city location has value to this cluster.

Next Steps

Further analysis should be conducted to identify more cluster-related business opportunities for commercial services companies in the inner-city area. The business services initiative would then be charged with getting this information out to the marketplace. Suggested areas of work include:

- Determine capacity of existing inner-city commercial services companies
- Identify existing and future market gaps
- Identify entrepreneurship and franchise opportunities

Construction

Cluster Composition and Key Players

The construction cluster is comprised of construction contractors, construction services, suppliers, training entities, and design services (e.g. landscaping services and architecture firms).

The City of New Haven is leading coalitions of organizations to implement specific programs to ensure that current and future construction work benefits inner-city residents and businesses. These partners include the Regional Workforce Development Board, Empower New Haven, Inc., the Greater New Haven Chamber of Commerce, Yale University, Gateway Community-Technical College, the Associated General Contractors, the Building Trades Council, and the recently-formed Regional Contractors' Alliance.

Context

There are over \$1 billion in public and institutional construction projects underway or planned in the New Haven region over the next five years. This includes the Long Wharf Mall Project (over \$200 million in construction costs), the New Haven School Construction Program (over \$400 million in construction

costs), and extensive work at Yale, SCSU, and Quinnipiac College. Recent local experience demonstrates that concerted action will be required to ensure that the inner-city community participates in these opportunities.

The two most important issues determining this cluster's impact on the inner city are workforce and local contracting.

Workforce: A recent study undertaken for the City of New Haven projected that there will be a potential demand for several hundred new apprentices in the construction trades as a result of increasing demand for labor and an aging workforce. The City, the Regional Workforce Development Board, and Empower New Haven have partnered with the Building Trades Council on a Construction Workforce Initiative through which inner-city residents from the Empowerment Zone neighborhoods are being recruited and referred to union-sponsored construction apprenticeship programs and supported to succeed in those programs.

Organized labor has been responsive to this effort. Their willingness to participate is directly related, however, to the volume of work that is done through contractors hiring union labor. The trade unions are promoting use of Project Labor Agreements on large construction projects that require the entire project workforce aside from a percentage of supervisory personnel to be drawn from the union. In return, the trade unions would agree to certain work rules and agree not to strike during the course of the covered job. This ensures a flow of work to the unions that will provide the union apprenticeship opportunities to inner-city residents.

Contracting: The City of New Haven's Small Business Initiative has joined with major contractors, institutions such as Yale, and community representatives to found the New Haven Regional Contractor's Alliance. This organization will develop and carry out a program to build the technical capacity and financial strength of local minority-owned and women-owned companies. The Alliance is modeled on the Regional Alliance of Small Contractors serving New York and New Jersey. This effort has enabled small contractors to bid on and complete progressively larger jobs as their management skills and industry relationships increase. Members of the New Haven RCA include representatives of public and private owners, state departments, regional nonprofit organizations, developers/contractors, trade contractors, trade associations, trade unions, and the New Haven community.

Locally, a recent study identified over 1,900 small contractors in New Haven County that could benefit from the work of the alliance. Over 80 specific inner-city contractors were identified through lists maintained by different governmental agencies. These will be the initial targets of the New Haven Regional Alliance's effort. In a survey of contractors, the overwhelming majority welcomed the Alliance's program and identified specific areas where technical assistance is needed, including overall management, estimating, and access to financing and bonding.

The Alliance plans to provide a wide variety of services as their resources permit, including:

- Courses taught by industry experts in subjects such as bid preparation, cash flow management, work scheduling, and technology
- Networking events such as opportunity fairs where owners commissioning large projects, major contractors, and small contractors can meet each other, review projects on the horizon and make connections

- A program of preferential access to opportunities for small contractor members who had achieved certified levels of proficiency in certain level contracts
- A mentoring program to build on-going relationships between established contractors and emerging contractors to facilitate their growth
- One-on-one assistance in addressing particular business issues
- Bid Information Center where inner-city contractors will have access to bid documents in one place
- Issue regular publications (fact sheets, newsletters) useful to contractors and a database of companies, people, expertise which will support programming as well as facilitate tracking the success of the program.
- Access to bonding through new program components such as:
 - A bond guarantee fund
 - A relationship with a bonding company to issue bonds to firms certified by the Alliance
 - An escrow arrangement to provide assurances to general contractors on subcontractor cash flow issues
- Access to financing through partnerships with local banks to make working capital available to small contractors through accounts receivable financing, working capital loans, etc.

Strategies and Next Steps

The Advisory Board recommends building on the foundation being laid by these two programs. The private sector leadership must be engaged to ensure support for these efforts. The organization and development of the other clusters offer opportunities to make connections with these programs as the demand for construction services occurs in each cluster. Both programs should be closely coordinated with the wider business services and workforce development strategies detailed in Sections III.A and III.B.

Retail/Distribution

Composition and Key Players

The retail and distribution cluster is composed of a wide variety of businesses. The success of retail and distribution is closely linked to the success of the other clusters discussed. With the Long Wharf Galleria project slated to begin construction soon, the demands of New Haven's retail sector are many. In addition, New Haven has become a regional center of a thriving food industry that offers opportunities for growth through organized action.

Many active partners are critical to the success of the ongoing projects in this area. These partners include:

- City of New Haven Office of Small Business Development
- Greater New Haven Chamber of Commerce
- Town Green Special Services District
- Whalley Avenue and Upper Chapel Special Services Districts

- Market New Haven, Inc.
- United Merchants Association
- Regional Workforce Development Board
- Empower New Haven, Inc.

Context

Success in the wholesale foods industry has made New Haven a primary distribution center for the region over the last several years. New Haven is promoting and expanding its retail and distribution cluster through targeted strategies developed in collaboration with business, civic, and community representatives. New Haven's retail strategy includes development of the Galleria Mall at Long Wharf to meet regional demand for retail, enhancement of the unique retail shops in the downtown area, and support for neighborhood retail along neighborhood arterial streets to meet local demand.

There are several ongoing efforts in New Haven to expand the city's retail and distribution sector, including Ernst & Young Downtown Retail Strategy, the "Square Foot" Retail Marketing Study for Downtown, and the Quinnipiac College Regional Retail Survey. These are being coordinated with the studies within the arts, entertainment, and tourism cluster.

The competitive advantages driving retail development include New Haven's location at the junction of two major interstates (I-91 and I-95), strong local government support for business, and a large potential workforce. To foster retail growth, New Haven must combat the negative perceptions of security downtown and in the neighborhoods and address issues of workforce skills and quantity to meet the demands of a thriving retail sector. Addressing workforce issues will also be critical to the successful growth of this cluster. (See Section III.A. on workforce). An estimated 40 percent of New Haven's inner-city residents over 25 years of age lacked a high school diploma in 1990. The retail sector provides an entry point to the labor force for workers lacking technical skills. Retail jobs can provide the 'soft skills' and work experience necessary for workers to move on to better jobs.

In the longer term, the Long Wharf Galleria will bring opportunities for building income and wealth in the inner city. The mall developer, in alliance with the City, is committed to hiring New Haven residents. The RWDB is working with ENH and the City to establish a Retail Academy Training Program to meet the anticipated demand for a trained workforce upon completion of the mall, as well as to meet the city and regional demand for qualified entry-level employees.

Strategies

As with commercial services, the Advisory Board sees the future growth and potential of the retail/distribution cluster connected to the success of New Haven's other clusters. In particular, expanding New Haven's arts and entertainment cluster, combating the perceptions of crime in the city, and addressing workforce issues are of critical importance in promoting retail growth.

The majority of recommendations for the retail/distribution cluster involve expanding existing initiatives and projects already in the planning stages. These include:

- Determining feasibility of specific projects recommended in Ernst and Young report and beginning implementation
- Establishing the Retail Academy and funding appropriate employee support systems, such as transportation and 18-month portable Employee Assistance Program
- Forming a committee of interest for the distribution/ food processing industry and identify logistics, transportation, and space needs
- Leading a focused effort to increase employment in existing businesses in this cluster
- Examining the potential for public food market

Next Steps

Cluster leaders should focus on determining the most effective strategies from among the recommendations of recent planning efforts and driving their implementation. From the perspective of the inner city, efforts should be focused on workforce issues and the development of through enhanced business services (Section III.B). These inner-city retailing efforts would involve close collaboration with Empower New Haven and the other sustaining institutions.

III. CROSSCUTTING ISSUES

The Advisory Board distilled the survey results and committee deliberations into six crosscutting issues that must be addressed for Greater New Haven to create competitive industries, competitive residents, and competitive communities: workforce, business services/access to capital, sites, security, cost of doing business, cluster leadership. This chapter discusses each of these issues in detail.

Workforce

Findings

Business owners interviewed in nearly every cluster reported difficulties finding qualified workers in today's tight labor market. With the official regional unemployment rate below 2.5 percent, employers are reaching out to new labor markets and are frustrated with skill levels and readiness of applicants. Continued high unemployment and underemployment in inner-city neighborhoods is thus attributable to a skills mismatch and other barriers to employment such as transportation and childcare.

Considerable research and deliberation within the community over the past two years point to the need for a concerted effort to recruit, prepare, and place inner-city residents in jobs leading to careers that support an adequate quality of life. This is a major component of the Empowerment Zone Strategic Plan and the early work on its implementation.

The findings of the business were consistent with the Advisory Board's experience and recent studies:

- Businesses report difficulty of securing motivated, substance-free trainees with adequate child care and/or transportation for entry level jobs.
- Job training grants do not generally cover training for employed persons to learn new skills and move up the job ladder.
- Job training is often not adequately linked to job placement.
- Coordination of existing training programs in terms of availability, quantity, and level is weak.
- There is a need for a continuum of programs, including an emphasis on strategies to support retention of jobs secured and promotion and career advancement within clusters.
- There is a need for a better mechanism to identify where jobs are and what skills are required for these jobs.

Substantial resources are devoted to education and training in our community. Regional school districts spend over \$500 million annually. Federal training funds for the region from all sources total over \$10 million annually in recent years. However, the demand for training from employers and individual workers far outstrips this supply of training resources.

In 1998, Congress enacted the new Workforce Investment Act (WIA) to move our workforce development system to a more integrated system of education and job training under the guidance of regional workforce investment Boards composed of a majority of private sector representatives. In our area, the Regional Workforce Development Board is being reformulated to play this role. All state and local agencies that receive most or all of their training funds from the federal government are required to coordinate their services through new WIA One-Stop Career Centers. These centers will offer consumers and employers one-stop access to a comprehensive array of services and information. These changes present an opportunity for more effective collaboration and increased accountability of training providers to the business community and the inner-city community.

Sustaining Institutions

Regionally, the reconstituted Regional Workforce Development Board will be the lead agency to develop a comprehensive response to the needs of both residents and cluster employers. Some of the partners in this effort are listed in the sidebar at right. The lead State partners in terms of resources include the Department of Labor and the Department of Social Services. DECD has recently begun a program offering employers incentives to develop training networks to meet their training needs. The Chamber of Commerce has worked with businesses to define their workforce needs and seek solutions for them.

The lead agency working to address workforce development needs of the inner-city residents is Empower New Haven, Inc., working with the coalition of partners, including all those listed, in a comprehensive effort to connect inner-city residents with area clusters.

Workforce: Sustaining Institutions

- City of New Haven
- Regional Workforce Development Board
- Empower New Haven, Inc.
- Connecticut Department of Labor
- Connecticut Department of Social Services
- Connecticut Department of Economic and Community Development
- Greater New Haven Chamber of Commerce
- Regional Growth Partnership
- New Haven Board of Education (K-12 and adult education)
- Gateway Community College
- Other higher education institutions
- Training entities (nonprofit and for-profit)

Strategies

The Advisory Board specified the following strategies for the short, intermediate and long term to address workforce issues across the six clusters.

Proposed short-term strategies include the following:

- **Implement a comprehensive recruitment, assessment, job readiness training, and placement initiative with neighborhood-based outreach and improved access to regional jobs.** Empower New Haven, Inc. has launched this outreach program working with the Regional Workforce Development Board and other partners.

The Regional Growth Connection, a collaboration among the Regional Growth Partnership, the Regional Workforce Development Board, and area transportation agencies, arranges for new transportation services to take low-income workers to work in regional businesses. As of December 1999, this program had facilitated trips to work for over 1,000 individuals to over 250 businesses in about 18 months. 82 percent of these workers live in New Haven.

Another promising program under consideration statewide is the STRIVE job readiness program. A replication of STRIVE in New Haven will launch operations in 2000 assisted by State and private investments.

- **Develop customized training for specific jobs identified by cluster companies with enhanced Employee Assistance Program to ensure more effective retention.** Immediate targets identified include three call centers (SNET, DSL.net, FreshNex) and a major hiring of technical workers by SNET. Empower New Haven has developed a customized training initiative and is reaching out to cluster businesses. Other cluster-based programs that are moving forward include a Retail Academy and the Construction Workforce Initiative, described above, to recruit and prepare residents for the growing number of construction jobs in the region. Cluster-based training programs that could be expanded through securing additional resources include the Manufacturing Training Program and programs to address the needs of the financial services industry and the printing industry.
- **Develop expanded career and educational choices for inner-city students, particularly in technical and science careers.** The Higher Education Consortium and the business community can assist in expanded college preparation and financing.

For the intermediate term (two to five years), the Advisory Board put forward the following strategies:

- **Work with cluster leaders and the Higher Education Consortium to align curricula with cluster skill needs and define career pathways, including access to certificate, Associate, and Bachelor's programs.** In a companion effort, there is a need to enhance high school counseling and career awareness programming through broader employer engagement.
- **Market career opportunities to parents and students to overcome a lack of awareness of options in the new economy and inaccurate stereotypes about many well-paying technical and manufacturing careers.**

Over the longer term, the Advisory Board put forward the following strategies:

- **Engage broad private sector, cluster, and community leadership in the process of improving the K-12 education system, including vocational-technical schools, through a range of specific collaborations and tactics.**
- **Engage higher education institutions in increased efforts to improve K-12 education.** Areas suggested by New Haven school officials included:
 - Support for literacy initiatives
 - Deepening school-to-career partnerships
 - Teaching of teachers
 - Leadership training for district and school level leaders to better address the challenges they face
 - Technology partnerships to bring the full benefit of new information technologies to the learning process

Next Steps

Participants in the process have already begun a number of implementation activities, including the following:

- Discussions are underway on the division of responsibility among RWDB, Empower New Haven, the Chamber, and the City for the implementation of a comprehensive workforce strategy focusing on opportunities for inner-city residents.
- Call Center Opportunity: The above entities are developing a specific strategy to recruit inner-city residents and others from the region to meet the needs of the call center projects identified through this study.
- Empower New Haven has proceeded with new initiatives in customized training, recruitment, and job readiness training.
- The Regional Workforce Development Board is proceeding with WIA implementation, and as of July 2000 will assume its new role as overall planner and guide to the system rather than provider of direct services. The One-Stop Career Center system through which all public workforce development activities and investments will be coordinated for the benefit of employers and jobseekers is a critical initiative within this effort.

Workforce: Anticipated Outcomes

In three years with additional state resources, this strategy will expand local capacity to:

- Recruit and train inner-city residents for a full range of jobs in growing clusters, including 300 in New Haven call centers
- Involve corporate leaders in developing **customized training programs for six clusters**
- Increase enrollment of inner-city residents at regional higher education institutions by 15 percent

- Higher Education Consortium: The six higher education institutions have agreed to work together as appropriate to explore collaborative programming to address the needs of K-12 education and to align curricula with skill needs.

The major focus over the next year must be on continuing improvement in the coordination and delivery of employer-driven workforce development services through the implementation of the Empowerment Zone strategies and the full development of the Workforce Investment Act One-Stop Career Center system.

Resources are a major constraint, however. A major State investment in workforce development, on the

scale of \$3 million per year for three years could yield significant results, including preparing over 2,000 inner-city residents for jobs in the clusters identified.

Business Services/Access to Capital

Findings

Business interviews and discussions with technical assistance providers revealed a significant unmet demand for business technical assistance. Some small businesses also cited that access to capital is a major barrier to success. Table 10 lists sources of capital and Table 11 lists current efforts to meet business assistance needs.

Business technical assistance needs range from one-on-one consultations, to assistance in developing business plans and troubleshooting common business issues, to classes and workshops on the full range of topics important to business growth (e.g. tax, personnel, supplier relationships), as well as ongoing

technical assistance over time. Needs also vary with the size of the business and stage in the business growth cycle.

Local practitioners have developed a good sense of local needs through interactions with hundreds of existing businesses and entrepreneurs proposing new businesses.

The resources available from local funding sources limit these technical assistance efforts. Additional investment of State resources would enable effective providers to increase the level of services with a corresponding increase in business development and expansion.

Access to capital. One of the key components for small business growth is access to capital markets. New Haven business owners can approach a wide variety of private and publicly supported sources for their financing needs (Table 10).

Business Services/Access to Capital: Sustaining Institutions

Statewide

- DECD
- Small Business Administration
- Connecticut Small Business Development Center
- Connecticut Economic Development Fund
- ConnSTEP
- Connecticut Innovations, Inc.
- CTCIC

Regional

- Regional Growth Partnership
- Regional Business Resource Center
- GNH Business & Professional Association
- Regional Contractor's Alliance

Local

- City Small Business Initiative
- Service Corps of Retired Executives
- NHDC/TIF

Although these programs are available, there are several barriers that continue to limit many inner-city business owners' ability to access the mainstream capital markets.⁸ These include:

- **Lack of management experience and effective business networks:** Approximately 40 percent of the residents in the New Haven study area have less than a high school education. These individuals often have few business connections. While 50 percent of all US business owners have close relatives in business or are self-employed, only 38 percent of Hispanic-owned business owners and 31 percent of Black-owned businesses have these networks.
- **Incomplete credit information:** Lending institutions often have difficulty assessing the credit-worthiness of some inner-city residents due to a lack of traditional income, collateral, and credit history.
- **High transaction costs:** High administrative and underwriting costs of analyzing and structuring small business deals create obstacles for entrepreneurial lending.
- **Lack of bilingual resources:** High quality bilingual support is not readily available in New Haven.
- **Perception of inner-city business environment:** Potential lenders and investors often have misperceptions regarding the viability of the inner city as a business location.
- **Lack of equity:** Even with strong business plans, many inner-city entrepreneurs cannot meet banks' equity requirements. Equity investment vehicles for sound business prospects could address this need.

⁸ This section draws on local research and work by Andersen Consulting for the Hartford region, which was shared through the ICIC process.

A concerted effort must be made to address the education and technical assistance needs of potential borrowers and to examine the practices of private and community lenders that may unnecessarily impose barriers.

Organizational Challenge. While there are many entities engaged in assisting businesses and providing loans in New Haven, there is no framework or umbrella mechanism for coordinating these efforts. There is also not a clear process through which businesses can access needed technical assistance and capital. Providers have developed an informal network that helps businesses eventually reach the most appropriate service, but because this often requires multiple calls and visits, many entrepreneurs never get started. An integrated network supported by information technology and protocols for referrals would greatly increase the efficiency and effectiveness of the business services system. A common “front door” to the system is also cited as a need, although an alternative but complementary approach is to collaborate so there are “no wrong doors.” In this scenario, entry to any provider opens clear access to the entire system.

Table 10: Loan and Equity Programs Available to Small Businesses in Greater New Haven

PROVIDER	PROGRAM
Private	
People’s Bank Community Lending	Focused small and urban business lending program
FleetBoston/First Community Bank	Focused small and urban business lending program
Public, State	
State of Connecticut, Department of Economic and Community Development	Grant and loan programs
Connecticut Development Authority	Connecticut Small Business Reserve Fund CDA/Urbank
City of New Haven Small Business Initiative	Small Business Loan Fund/Direct loans up to \$10,000 HUD 108 Loan Guarantee Program/Direct loans for all purposes
Nonprofit	
New Haven Development Corporation	SBA 504 direct loans/SBA 7a loan guarantees
New Haven Community Investment Corporation	Fixed Asset loans Defense Diversification loans SBA microloans Direct loans for any purpose
Technology Investment Fund	Venture capital for technology-based companies
Greater New Haven Community Loan Fund	Flexible loans for nonprofit ventures
Connecticut Economic Development Fund	Technical assistance and loans to small bus. for all purposes
New Haven Enterprise Community	Enterprise Community Revolving Loan Fund/Microloans up to \$5,000
Connecticut Innovations, Inc	Venture capital for technology-based companies and uses
Defense Diversification Fund	Financing for defense diversification studies and implementation
Elm Haven Urban Revitalization Demonstration, Enterprise Dev. Program	Proposed revolving loan fund for merchants within HOPE 6 area
Working Capital	Micro-lender, based in Boston, offering very small loans

Table 11: Inventory of Business Technical Assistance Resources in South Central Connecticut

Provider	Services	Geographic Area
Connecticut Economic Resource Center (CERC)	Smart Start, business information center; economic development effort through marketing and public relations	State
Connecticut Small Business Development Center (CSBDC)	Confidential, one-on-one business counseling services to small business owners; focus on helping small business owners and those considering starting a small business to develop necessary skills	State
Service Corps of Retired Executives (SCORE)	Retired business executives and owners volunteer to advise small businesses; provide overview and insight on the process of establishing and operating a business	Greater New Haven region
The Enterprise Center, Inc. (A Project of Yale University, United Illuminating, and the New Haven Savings Bank)	Help entrepreneurs, start-ups, and other small to medium-sized businesses build successful enterprises; provide access to resources; work with enterprises in various industries Consulting and advisory services: strategic planning; general business consulting; financial analysis and services; negotiation assistance, management team building; physical resource location and evaluation Introduction services: provide introduction to sources of capital, resource volunteers, financial planning resources, sources of professional services, sources of support services	Greater New Haven region
Regional Business Resource Center (RBRC)	Counseling services for starting and improving a business; educational seminars; computer lab; large business library for start-up and established businesses	Greater New Haven region
Greater New Haven Business and Professional Association	Aids minorities in new and existing businesses through training and technical assistance	Greater New Haven region
The Entrepreneurial Center at the University of Hartford	12-14 week program which helps individuals to start and grow their own businesses; develops the business owner and the business through training, technical assistance, and group support	Hartford, Bridgeport
Community Economic Development Fund (CEDF)	Technical assistance in connection with loans from community economic development lending pool	State
CT Dept of Economic and Community Development (DECD)	Assistance to businesses in accessing state resources	State

CONN/STEP	Direct technical assistance to small and mid-size manufacturing firms; support best-practice manufacturing and offer expertise in manufacturing materials and process technologies	State
Connecticut Innovations, Inc. (CII)	Financing and technical assistance for high technology companies in Connecticut	State
The Institute for Industrial and Engineering Technology (IET) at Central CT State University	Programs: Manufacturing Application Center, Flexible Manufacturing Networks Center, Connecticut Procurement Technical Assistance Center, Human Resource Development Center, SECTOR - Southeastern Connecticut Enterprise Region, CEEC - Connecticut Environmental Entrepreneurial Center, TAC - Technology Assistance Center, TECHCONN -Technology for Connecticut, Inc.	State
Precision Manufacturing Institute, University of Connecticut	Provides an infrastructure and focused multi-disciplinary environment where students, faculty, and professional practitioners collaborate to learn, create knowledge, and design solutions in manufacturing processes, integrated process/product design, production information systems and manufacturing entrepreneurship	State

Strategies

The Advisory Board recommends the formation of an “umbrella entity” for business services under the auspices of the private sector leadership structure, developed through a collaboration of the Greater New Haven Chamber of Commerce, the Greater New Haven Business and Professional Association and Hispanic business organizations. This umbrella, which could be called the Greater New Haven Business Connection, would help ensure the coordinated delivery of business support services. Specific functions of the entity could include:

- Work with technical assistance organizations to coordinate their delivery of business planning and technical assistance (e.g. identify the niches or specialties of each and create referral processes).
- Leverage pro-bono private sector and higher education resources, such as training and advisory programs (e.g. specialized industry programs and mentoring programs), as well as field study programs with business schools.
- Work with private and nonprofit lending institutions to improve access to capital.
 - Provide a mechanism for “bridge loans,” using public revolving loan funds to fill the gap between privately available loans and the amount requested.
 - Increase utilization of letters of credit to enable small, high-potential businesses to gain access to capital.
- Publish a comprehensive guide to all programs and services (Web and hard copy)
- Maintain a Web site where the public can easily access information regarding small business development in New Haven and the available agencies that can offer advice and/or financial assistance
- Develop a network of the region’s financial institutions, technical assistance providers, regional professional schools, and other business services to communicate program needs and facilitate service

delivery. Functions of this network would include:

- Communication regarding new programs, opportunities, products, and services
- Identification of issues for planning purposes
- Assessment of the availability of capital and need for new loan products
- Monitoring capital flow to inner-city businesses and identifying issues going forward
- Tracking of approved and unsuccessful loan applicants. Approved applicants would receive post-loan technical assistance from both agencies and area colleges and universities where warranted. Unsuccessful applicants would be referred to technical assistance agencies that would help the applicant understand why his/her loan was not approved.

The Business Connection would serve existing and start-up small businesses. While regional in scope, it would maintain a focus on entrepreneurs in the Empowerment Zone and nearby inner-city neighborhoods. Through this network, high-quality technical assistance would be more easily accessible to inner-city residents and businesses.

Another purpose of the Business Connection is to identify the needs of area small businesses and the existing gaps in business services that need to be filled. Financial resources will be needed in order to support expanded services and to expand existing services in order to fill these gaps.

The umbrella entity would report back to the community on specific outcomes of the work of members of the network (e.g. number of residents served, customer satisfaction, number of businesses formed as result of each entity's work).

Resources will be required for the phased development of the Business Connection. Early work may be accomplished with existing resources while new resources will be required to expand services of Business Connection members and develop some of the Business Connection functions.

Business Services/Access to Capital: Anticipated Outcomes

In three years, this strategy will expand local capacity as follows:

- **250 businesses** will receive critical technical and managerial assistance for expansion.
- Four business schools and corporate partners will be engaged in delivering business services.
- **Loans** made to inner-city businesses will increase by 10 percent.

Next Steps

Discussions have been initiated with the Chamber of Commerce and business services providers. The next step is to develop the specific charge and organizational structure of the proposed umbrella mechanism, secure local, State, and private resources to support it, and launch the effort. To launch this initiative, an initial start-up and first year operational investment of \$500,000 is requested along with two years of operating support at \$250,000 per year.

Sites

Findings

Fostering an environment that facilitates business growth is an essential element of New Haven's inner-city economic success. The interviews with economic development officials and business owners identified a strong demand for clean, buildable sites within the inner city as well as throughout the region. A major concern is actual contamination or fear of contamination on "brownfield" sites. The city has identified 18 sites comprising over 250 acres, mostly within the inner-city study area, which are underutilized and show potential for reclamation and redevelopment.

The Regional Growth Partnership (RGP) and the City of New Haven have been working hard on this issue for several years and have received state assistance to examine many specific sites. Several sites have been identified and studied. However, due to a gap between market price and remediation costs, many of these sites require public investments to remediate environmental or obsolete structure issues.

In the case of the knowledge-based business clusters, site needs relate to the need for specific technical requirements. In the case of Biotechnology, start-up and early stage companies require access to affordable lab space. In the case of information technology, start-ups and early stage companies need high bandwidth (fiber optic) capability. (Please see discussion of knowledge-based business cluster above for additional information).

The Advisory Board expressed concern about potential negative effects that slating commercial sites for non-commercial uses will have on economic development in New Haven's inner city. At the same time, community representatives have concerns about the unintended consequences of increasing commercial activity in their neighborhoods (e.g. increased traffic). The Neighborhood Planning Process provides an opportunity to find viable solutions to these zoning issues.

The Departments of Economic and Community Development (DECD) and the Department of Environmental Protection (DEP) are working to address the issue of brownfield remediation on a statewide basis. According to a 1998 General Assembly Legislative Program Review and Investigations Committee study, three new programs are particularly poised for success with appropriate funding and agency oversight:⁹

- The Special Contaminated Property Remediation and Insurance Fund (SCPRIF) provides loans for comprehensive environmental site assessments.

Sites: Sustaining Institutions

- City of New Haven
- Regional Growth Partnership
- Empower New Haven, Inc.
- Greater New Haven Chamber of Commerce
- State DECD / DEP
- Science Park Development Corporation
- Land owners

⁹ Source: Connecticut General Assembly Legislative Program Review and Investigations Committee. "Brownfields in Connecticut." 1998.

- The Urban Sites Remedial Action Program (USRAP) provides financial and technical assistance for investigating and cleaning up environmental contamination. Selected projects have enhanced the economic well-being of their respective communities by stabilizing neighborhoods and creating jobs.
- A surcharge on gross receipts from dry cleaning services is available to provide grants to owners and operators of dry cleaning establishments for remediation and prevention of environmental pollution at these businesses.

In addition, the RGP has been working with regional municipalities (including New Haven) to identify priority sites and provide funds from a State-supported regional pool for Phase I Environmental Studies. This local approach has been extremely successful in beginning the site remediation process. A second round of State funding has been committed to this effort.

The RGP also serves as convenor for the Clean Sites Coalition, a statewide coalition advocating for resources and regulatory support for brownfields redevelopment.

Strategies

While New Haven's inner city offers locational advantages due to transportation access and infrastructure, many of the available sites are temporarily unusable due to environment liabilities, obsolete structures, or zoning issues. Investment in the remediation of these sites is necessary for New Haven's inner city to meet its potential as a competitive business location.

The action steps recommended by the Advisory Board are the following:

- Develop a prioritized list of brownfield sites in the city
- Identify potential assemblages and resolve how to aggregate land parcels
- Analyze the cost of returning these sites to market use at competitive rates
- Seek a combination of state funds and incentives to remediate and assemble specific sites.

In addition to increasing the availability of clean, buildable sites in the inner city, the Advisory Board also recommends increasing the availability of speculative lab space and "smart buildings" to promote growth in the biotechnology and information technology clusters.

New strategies and incentives are required to create affordable lab space for start-up and early stage biotechnology companies. In information technology, New Haven's infrastructure is strong, the cluster is growing nationally, and several start-ups have emerged in the Greater New Haven area. New Haven can encourage information technology companies to locate in the inner city by increasing site availability. This can include creating "smart buildings" by

In three years the coalition of sustaining institutions will apply new state resources to:

- Complete environmental assessments on **eight sites** within the inner-city study area
- Develop a detailed prioritized redevelopment strategy for **100 acres** of currently unusable land
- Increase available land for development by **40 acres**
- Initiate the development of **four sites** in the study area

bringing high bandwidth (fiber optic) capability to designated buildings.

Next Steps

To bolster ongoing efforts to increase site availability, the Advisory Board seeks the following resources to pursue the strategies outlined above:

- Significant tax credits for information technology infrastructure improvements
- \$2 million fund for inner-city site remediation
- A fund to develop speculative bio-technology space

Security

Findings

Inner-city business owners interviewed during this project cited perceptions of crime as the top competitive disadvantage in New Haven. Although actual crime rates have gone down dramatically, serious concerns remain. Certain businesses in industrial areas also reported being plagued by actual crime. Enhancing actual and perceived security in New Haven's inner city is necessary for creating a successful, competitive city.

The Police Department is actively working with local businesses and the Livable Cities Initiative to address crime issues. In addition, New Haven has a citywide Blockwatch and Community Policing Program that have begun to make major strides in the city's efforts against crime.

Addressing the perceptions of crime in New Haven's inner city is a challenging task that will require concerted effort and counter-marketing over a period of years.

Strategies

Addressing real and perceived crime in New Haven is of primary importance to the city's future success. In light of this, the Advisory Board recommends the following strategies:

- Strengthen the community-based policing partnership with businesses and neighborhoods to reduce crime. Several neighborhood representatives are meeting with the Police Department and business representatives to discuss strategies for improving the city's community-based policing program.
- Create a security consultant/ombudsman position within Police Department to work with businesses and business services. Through initial meetings with the Police Department, the Advisory Board was able to bring specific concerns of inner-city business owners to their attention, resulting in a productive, open discussion between the two groups. Immediate steps were taken by the Police

Security: Sustaining Institutions

- City of New Haven
 - Police Department
 - Business Development
 - Livable Cities Initiative
- Empower New Haven, Inc.
- Community Management Teams
- Citywide Blockwatch
- Greater New Haven Chamber of Commerce
- State Criminal Justice forces
- US Attorney

Department to address the specific concerns raised. Additional follow up has led to the proposal to create this position within the Department.

- Develop trusted neighborhood scorecard measures to address perceptions. By creating scorecards in collaboration with civic, business, and neighborhood representatives, New Haven can begin to move away from the current perception as a crime-ridden city toward a more realistic view as one of Connecticut's thriving urban centers.
- Work with the entity that will be charged with implementing the proposed downtown marketing plan to address perceptions of security downtown and throughout the city. Additional efforts to market the neighborhoods once crime issues have been addressed will be important complements to this effort. Principal partners with the neighborhoods in that effort will be Empower New Haven and the Mayor's Livable City Initiative.

Next Steps

The Advisory Board will continue working with the police and neighborhoods to create the Neighborhood Scorecards. In addition, the Police Department will continue to collaborate with neighborhood residents and businesses to address Community Policing and design/facilities management strategies. The proposed creation of a business ombudsman at the Department will enhance the success of these efforts.

Cost of Doing Business

Issue Definition

Similar to the four other cities participating in the Connecticut Inner City Business Strategy Initiative, New Haven businesses cited taxes as their top competitive disadvantage. Some firms also cited utility costs as a concern. The ability to offer special economic development rates on electricity was ended recently by the DPUC, hampering utility officials' ability to address this issue.

Cost of Doing Business: Sustaining Institutions

- City of New Haven
 - Business Development
 - Assessor
- State of Connecticut
- Greater New Haven Chamber of Commerce

With the expansion throughout the state of tax incentives originally designed to level the playing field for cities, those interviewed indicated that state urban incentives have been diluted substantially, leaving local business owners with the perception of wide disparities between city and suburban sites.

The local permitting processes was also cited as a barrier to business expansion within the city.

Strategies

The Advisory Board is recommending the following strategies to address the high cost of doing business in New Haven:

- Enact new or refocused state financial incentives to promote inner-city investment and employment.
- Address streamlining of local permitting processes, using the CERC Smart Start as a possible model to be applied locally.

Over the long term, lowered demand for services and more income in neighborhoods should also help to address the pressure on local tax rates that is affecting business competitiveness.

The next step is to pursue additional targeted incentives and work with the city to address local permitting issues.

Cluster Leadership

Findings

The interviews with business owners and economic development officials pointed to a need for more focused leadership from the private sector to ensure that strategies are connected to the marketplace and issues are resolved cluster by cluster. This would also ensure that growing clusters are well-represented within the public-private partnerships that are driving economic development in the region.

The state has supported cluster activation in several areas relevant to the New Haven region, including bioscience, software and information technology, and precision manufacturing.

Strategy

To foster on-going business growth in New Haven, the New Haven Advisory Board proposes that the private sector leadership structure, led by the Greater New Haven Chamber of Commerce, organize key leaders in each cluster to develop focused agendas that build on the recommendation in this report. Each cluster agenda would have two components:

- Strategies to support the health and growth of the cluster in the region
- Strategies to ensure that this growth is connected to the businesses and residents in the region's inner city

The agenda-setting process would engage public and community partners within each cluster and create the scorecard by which the community will assess progress.

Regional cluster advocates will coordinate closely with statewide cluster initiatives and existing inner-city economic development initiatives such as the Empowerment Zone. The Chamber of Commerce would provide technical support for each of the six clusters through existing or new internal councils or affiliated organizations.

The cluster advocates and regional cluster working groups or committees will:

- Convene cluster interests to continue the work of analyzing cluster needs begun through the ICIC process.
- Provide a clear voice for the cluster in general business, governmental, and educational matters.
- Define a specific agenda for business growth in that cluster, building on the ongoing work in each cluster and addressing key issues that represent competitive disadvantages for companies within the cluster.

- Work with the sustaining institutions working on each of the crosscutting issues identified in the ICIC process to define and implement specific strategies (a) to support the health and growth of each cluster and (b) to link cluster needs and growth to the goal of improving the economic status of the region's inner-city neighborhoods. Specific areas include:
 - Inform workforce development efforts directly, including recruiting companies to participate in educational and workforce initiatives underway or in development to address workforce needs.
 - Identify opportunities to increase the proportion of cluster purchasing that can be met by local vendors to increase local economic impact of cluster business activity.

Cluster advocates will be supported with staff and technical support and financed with investments of State or other funds.

Next Steps

The next step is to recruit the cluster advocates for those clusters that are ready for this approach and secure the resources to support their work.

IV. Implementation

The Advisory Board has identified local institutions to assume responsibility for implementation of the many recommendations emerging from its work rather than creating new organizations or institutions. In this way, the strategies build on work in progress, mesh with on-going interests and strategies, and have a higher likelihood of success. Some new collaborative structures are recommended, such as the umbrella entity for business services, but the stress has to be on sharpening the focus and expanding the scope of the existing programs to ensure far greater local impact.

The assignments of responsibility for the crosscutting issues are presented in Table 13 below.

Overall scorecard measures for the effort are similar to those incorporated into the Empowerment Zone Strategic Plan and other planning processes, including:

Sample Outputs

- Number of businesses served by type, sector, and size
- Business and job formation
- Educational achievements
- Job placements through workforce programs

Sample Outcomes

- Unemployment rate
- Welfare rolls
- Home ownership
- Taxable grand list
- Property values
- Business ownership

The Advisory Board will reconvene periodically to assess progress against a set of scorecard measures delineated in the table. As implementation proceeds, these measures will be refined with each sustaining institution to be more specific. The periodic meetings of the Advisory Board will then serve as a forum for sharing progress across institutions, identifying areas where progress is lagging, and suggesting appropriate action.

In order to provide an adequate support structure for this initiative, the Advisory Board seeks the following State resources:

Cluster Infrastructure

- \$250,000 for regional cluster activation; \$100,000 over the next two years for maintenance
- \$500,000 for launch of New Haven Business Connection; \$250,000 per year for next two years for operation
- Significant tax credits for information technology infrastructure improvements

Crosscutting Issues

- \$3 million per year for next three years for remedial job readiness and customized job skills training
- \$2 million fund for inner-city site remediation
- A fund to develop speculative biotechnology space

VI. CONCLUSION

New Haven and the region have worked hard to tackle the city's most pressing challenge – extending today's economic prosperity to citizens who have been left behind. Through the New Haven Inner City Business Strategy Initiative, leaders from the city's private, public, and community sectors have made progress toward achieving a strategic vision and action plan for building inner-city competitiveness and economic strength and creating the momentum needed to meet the project's objectives.

Through this initiative, New Haven has achieved a strategic vision and action plan for building inner-city competitiveness and economic strength. This strategic vision is rooted in careful analysis of the business clusters that will drive economic prosperity. The strategy includes action steps to address the crosscutting issues affecting cluster growth and identifies organizations to lead the implementation of these strategies. The next step will be to move the strategies into implementation and track progress.

This planning process occurred as the New Haven and regional communities were embarking on numerous specific development initiatives and planning processes, from the Empowerment Zone, to the new Regional Plan of Development, to a regional campaign to support the biotechnology cluster. The New Haven Inner City Business Strategy Initiative has achieved the objectives of (1) injecting a strong focus on cluster-based development into those discussions and (2) ensuring that the plans and strategies emerging from those processes focus on market-driven business growth and increasing the competitiveness of the inner city. Local and regional private sector leadership has heard the message and is focusing its civic agenda on the most pressing issues identified through this process, including workforce and education issues and cluster leadership.

The principal directions contained in this report and the need to maintain a focus on inner-city competitiveness have been communicated to many constituencies, a process that will continue through the work of the City Champion, individual Advisory Board members, and the identified sustaining institutions.

By taking decisive action to implement this strategy New Haven will achieve dramatic results:

- Prepare hundreds of inner-city residents to compete for higher-skilled jobs with opportunities for advancement.
- Create a competitive business environment that facilitates and supports business growth and attracts new business.
- Create a strong base of inner-city businesses with access to the resources and assistance they need to expand and to adapt to competitive pressures.
- Develop a pool of inner-city entrepreneurs poised to take on new business opportunities.
- Solidify ties among business, government, and nonprofit leaders and build the institutional infrastructure needed to promote and sustain business development in the long term.
- Fundamentally alter the opinions and attitudes of customers, investors, and business professionals regarding viable business opportunities in New Haven's inner city.

Success will require sustained commitment across multiple constituencies to harness energy, resources, and leadership. By stimulating on-going commitment for these strategies, New Haven and the region will reach new heights of success in advancing the economic prosperity of their residents.

TABLE 12: CROSSCUTTING ISSUES, SUSTAINING INSTITUTIONS, STRATEGIES, AND REPORT CARD MEASURES

Area	Sustaining Institution(s)	Principal Strategies	Scorecard Measures
Workforce	Empower New Haven/RWDB with Chamber	<ul style="list-style-type: none"> – Implement job readiness/customized training initiative working with cluster leadership* – Expand career exposure and preparation efforts in local high schools through school-to-career initiatives – Work with higher education institutions to align curricula with clusters 	<ul style="list-style-type: none"> – Programs offered – Companies engaged – Job placements retention/wages – Educational achievements
Business Services/ Access to Capital	Private sector leaders	<ul style="list-style-type: none"> – Create umbrella entity, New Haven Business Connection, to focus and expand business services for improved results* – Develop strategies on access to capital 	<ul style="list-style-type: none"> – Number of businesses served by type, sector, and size – Business formation – Job creation/retention
Sites	Regional Growth Partnership/City	<ul style="list-style-type: none"> – Identify and prioritize city brownfields* – Move sites through process of study, clean-up, and reuse* 	<ul style="list-style-type: none"> – Site assessments completed (Phases 1 and 2) – Number and acreage of sites under development, by stage – Development completed (square feet, jobs)
Security	City with Empower New Haven	<ul style="list-style-type: none"> – Deepen community-based policing – Designate business ombudsman in Police Department – Develop trusted “scorecard” 	<ul style="list-style-type: none"> – Neighborhood scorecard – Crime rates
Cost of Doing Business	City	<ul style="list-style-type: none"> – Financial Incentive* – Streamline local permit processes 	<ul style="list-style-type: none"> – Incentives enacted – Number of companies accessing each existing and new incentive – Streamlining of permitting process completed
Cluster Leadership	Private Sector Leadership Structure	<ul style="list-style-type: none"> – Define focused cluster agenda through continued planning process* – Define role of champions* – Assist in recruiting champions where applicable – Support implementation of cluster agendas* 	<ul style="list-style-type: none"> – Focused cluster agenda defined – Focused cluster leadership structure in place – Support structure in place

* Areas in which additional State investment is sought.

TABLE 13: SUMMARY OF STRATEGIES BY CLUSTER AND CROSSCUTTING ISSUE

Cluster	Organization	Workforce		Business Services / Access to Capital		Sites		
		Cluster-specific	Crosscutting	Cluster-specific	Crosscutting	Cluster-specific	Crosscutting	
Knowledge-based Businesses	<ul style="list-style-type: none"> Cluster Advocate Higher Education Consortium Industry Committees Health Careers Task Force 	<ul style="list-style-type: none"> Customized training New certificate and degree programs 	<ul style="list-style-type: none"> Implement job readiness/ customized training initiative working with cluster leadership outreach, assessment, and counseling of individuals Expand career exposure and preparation efforts in local high schools through School-to-Career initiatives Work with higher ed institutions to align curriculum with clusters 	<ul style="list-style-type: none"> Enterprise Center for larger projects Venture capital program 	<ul style="list-style-type: none"> Greater New Haven Business Connection: Umbrella entity charged with coordinated delivery and communication of all business development (to focus and expand business services for improved results) Clear pathway for businesses and start-up entrepreneurs Equity and loan fund products developed or retooled to fill gaps Directory of all resources on web and in print 	<ul style="list-style-type: none"> Incubator and lab space Increase number of smart buildings Information technology infrastructure 	<ul style="list-style-type: none"> Identify and prioritize all potential sites Develop strategy and clean-up and assembly budget for each Inject site and economic development concerns into Neighborhood Planning Process 	
Arts, Entertainment and Tourism	<ul style="list-style-type: none"> Cluster committee Cluster advocate 	<ul style="list-style-type: none"> Customized training Links to higher education Internships/ apprenticeships 						<ul style="list-style-type: none"> Facilities Study Process Neighborhood venues
Commercial Services		<ul style="list-style-type: none"> Access to job-ready and trained personnel 						
Manufacturing	<ul style="list-style-type: none"> Manufacturer's Association Cluster Advocate 	<ul style="list-style-type: none"> Access to job-ready and trained personnel Feeder customized training programs Apprenticeships 		<ul style="list-style-type: none"> Increased Technical Assistance (e.g. CONN/STEP) 				<ul style="list-style-type: none"> Brownfields clean-up
Construction	<ul style="list-style-type: none"> Regional Contractor's Alliance 	<ul style="list-style-type: none"> Construction Workforce Initiative 		<ul style="list-style-type: none"> Contractor's Alliance programming 				
Retail/ Distribution		<ul style="list-style-type: none"> Retail Academy 						<ul style="list-style-type: none"> Brownfields clean-up, prep, assembly

Additional Crosscutting Issues

Security: Address the issue of perceived and actual crime through partnerships with the police and through marketing and activities to change perceptions.

Cost of Doing Business: Targeted financial incentives for the inner city will be sought through state legislation; Need to look at streamlining local permitting process.

Appendix 1

New Haven Inner City Business Strategy Initiative Advisory Board

Advisory Board Member Organization

Michael Adanti	Southern Connecticut State University
Kyle Ballou	Yale New Haven Hospital
Bill Battle	Newhallville Neighborhood Representative, EZ Program Council
Sal Brancati	City of New Haven Office of Business Development
George Clarke	Clarke's Clean Control
Kevin Diaz	Fair Haven Neighborhood Representative, EZ Program Council
Tom Ficklin	The Inner City Newspaper
Lynn Fusco	Fusco Corporation
Nancy Hadley	Community Foundation of Greater New Haven
Roger Joyce	The Bilco Company
Sherri Killins	Empower New Haven
Sheila Masterson	Whalley Avenue Special Services District /Dwight Neighborhood Representative, EZ Program Council
Matthew Nemerson	Greater New Haven Chamber of Commerce
Kathy O'Regan	Yale University
Richard Pearce	Regional Workforce Development Board of Greater New Haven
Kevin Rakin	Genaissance Pharmaceuticals
Pete Rivera	Hill Neighborhood Representative, EZ Program Council
Shelly Saczynski	SNET
Bob Santy	Regional Growth Partnership
Len Smart	Dixwell Neighborhood Representative, EZ Program Council
Charles Terrell	New Haven Savings Bank
Elaine Thomas Williams	Connecticut Minority Supplier Development Council, Inc.
Ben Trevelli	Applied Engineering Products
Nat Woodson	The United Illuminating Company

Appendix 2

New Haven Inner City Business Strategy Initiative Research Team

Research Team Member Organization

George Clarke	Clarke's Clean Control
Cynthia Farrar	Yale University
Angel Fernandez-Chevarro	Community Foundation for Greater New Haven
Tom Ficklin	The Inner City Newspaper
Robert Fort	The United Illuminating Company
Karyn Gilvarg	City of New Haven City Plan Department,
Mark Gius	Quinnipiac College
Lindy Gold	Department of Economic and Community Development
Peter Hance	City of New Haven City Plan Department
Barbara Lamb	City of New Haven City Plan Department
Nick Lavarato	Applied Engineering Products
Michael Lettieri	Department of Economic and Community Development
Ron McMullen	Quinnipiac College
Bob Mills	The United Illuminating Company
Christine Reardon	Regional Workforce Development Board of Greater New Haven
Todd Rofuth	Southern Connecticut State University
Helen Rosenberg	City of New Haven Office of Business Development
Fabio Sampoli	Greater New Haven Chamber of Commerce
Len Smart	Greater New Haven Business & Professional Association
Jane Snaider	Town Green Special Services District
Peter Stelma	Department of Economic and Community Development
Mark Thompson	Quinnipiac College, School of Business
Carla Weil	Greater New Haven Community Loan Fund
Rhoda Zahler	City of New Haven Office of Business Development

Appendix 3

Businesses Interviewed

Business Name	Primary Products or Services
Alexion Pharmaceuticals	Bio-pharmaceuticals
Altone Communications	Telecommunications, phone and voicemail systems
Applied Engineering	Compact and subcompact assembly parts
APT	Substance abuse treatment and counseling services
Beauty Plus	Beauty supplies and accessories
Bilco Company	Architectural products
Cello Ltd	High-end stereo equipment
Clarke Cleaning Control	Commercial janitorial services
Cougar Electronics II Corp.	Specialized semiconductors (high-voltage); rectifiers; power suppliers
Courage	Genomic-based drugs
Cyclone Microsystems	Intelligent i/o controllers
Draughn Conclusions, Inc.	Computer consulting, systems integration and training
DSL.net	High speed internet access; digital subscriber lines
Enthone-OMI	Specialty chemical coatings
Genaissance Pharmaceuticals	Database/tools that measure genetic variations
Harty Press	Commercial Print and Mail
High Precision	Contract manufacturing
Lehman Brothers	Printing/engraving
Marlin Firearms	Sports rifles, employee posters
McCallister-Bicknell	Laboratory Supplies
Metaserver	Software Package
MirrorWorlds Technologies	Software, sales, design, creation
Molecular Staging	Diagnostic tests and genomic services
Neurogen	Neuroscience, research and development
New Haven Grinding	Custom machining, grinding, machine repair
New Haven Manufacturing	Aircraft hydraulics, electrical hardware, time clocks
Newton-Foster Home Health Care	Home health care services
Newton-New Haven Company	Aluminum, zinc die casting
Nolan Industries	General machine and parts repair
Path Labs	Tests
Phoenix Press	Sheet-fed printing
Sargent Abba Alboy	Commercial architectural hardware
SpaceCraft Manufacturing	Jet engine spare and sub-assembly parts
TPA Design Group	Planning, engineering, landscape, architect services
Von Roll Isola	Thermal and electrical installations

(Approximately 20 additional companies contributed data and participated in other meetings or interviews as part of the process)

