
EXECUTIVE SUMMARY

The Central Naugatuck Valley region has slowly emerged from the adverse effects of the late 1980's and early 1990's recession. Although there is the public perception that the region's economy continues to suffer, the reality is quite different. There is considerable good economic news:

- While there continues to be economic uncertainty, the region's economy has recovered — by some measures stronger than the statewide economy.
- After experiencing tremendous growth during the 1980's and suffering through a devastating period in the early 1990's, the Central Naugatuck Valley's industrial real estate market is performing well.
- The most visible sign of the renewal is the new mall that is currently being constructed in downtown Waterbury.
- The number of unemployed residents has been declining for a number of years.
- Most respondents to our business survey report plans to modernize and expand soon.
- Manufacturing has made a strong comeback and has added jobs to the regional economy — it is comprised of nearly 600 firms that have an extraordinarily diverse customer base.
- While wholesale trade is a somewhat small component of the economy, it has experienced high relative job growth in recent years.

In addition to these changes, the region has benefitted from the work of a number of organizations and institutions. They have made significant contributions to the region's businesses and business climate. Included are the Council of Governments of Central Naugatuck Valley, A Community Vision for Waterbury, the Greater Waterbury Chamber of Commerce, the Naugatuck Valley Project, the Naugatuck Valley Development Corporation, the Connecticut Small Business Outreach/Development Center, the Neighborhood Revitalization Zones, the Waterbury Downtown Initiative, and New Opportunities for Waterbury.

With respect to training, there are many institutions that are playing a key role in educating the workforce. These include the manufacturing sub-committee of Visions,

Naugatuck Valley Community Technical College, the Waterbury Adult and Continuing Education program, Waterbury's Technology Education Program, Kaynor Technology, the Naugatuck Valley Project, and the Industrial Management and Training Institute. The State of Connecticut's Department of Labor and the Institute for Industrial and Engineering Technology have been very active.

While the region's economic and organizational strengths are formidable, challenges do remain. Economic disparities continue between the towns and Waterbury. Low-income residents remain somewhat disenfranchised from the mainstream of the regional economy. The region's workforce has been strong, but some employers feel that basic and higher level skills are lacking. Manufacturers find it difficult to attract highly-skilled production workers, and the existing public transportation system presents problems for residents who depend on it for getting access to training and jobs. Finally, balancing the need for redeveloping brownfields while making industrial land available for industry expansions will be a challenge.

STRATEGIES AND RECOMMENDATIONS

In order to help the region build on and take advantage of its strengths, and to help it address its challenges, recommendations are offered in four strategic areas (a more detailed list of recommendations is provide in the text of the report).

1. Maximize the Region's Core Economic Strength — Manufacturing

- Position the Central Naugatuck Valley as a center of manufacturing precision and vitality.
- Increase public support for manufacturing and careers in manufacturing for the region's residents.
- Develop and expand state-of-the-art high skills training programs.
- Further promote manufacturing modernization.
- Create more interfirm alliances and collaboration.

2. Maximize Job and Business Growth Opportunities in the Construction and Retail Sectors:

- Bolster the informal labor network through hiring "community job brokers."
- Exploit opportunities at the Brass Mill Center Mall and in retail.

- Capitalize on the extraordinary amount of construction activity that will occur in the coming months and years — jobs for residents and business opportunities for local contractors.

3. Promote a New Regional Vision and Spirit of Cooperation

- The COGCNV should aggressively promote the concept of regional cooperation within the valley, and with key leaders in the State of Connecticut.
- Create a regional "jobs network" composed of organizations representing the economic interests of low- and moderate-income residents in the region.
- Create a regional development agency to help in the development of cultural projects in Waterbury, redevelopment of brownfields, expansion of the Oxford Airport, and projects within the Neighborhood Revitalization Zones.

4. Develop a More Strategic Approach to Industrial Recruitment

- Create a volunteer, but first-rate, regional industrial marketing and response team to promote the region and to respond to inquiries.
- Go beyond the low-cost incentives proposed for the downtown information technology zone, when targeting the information technology sector.
- The region should actively develop marketing materials related to warehousing and distribution and develop specialized training and assistance programs oriented towards the industry.
- Promote the region's reputation for precision manufacturing and develop a regional marketing strategy to attract European firms that are interested in the Valley's rich manufacturing base.

CHAPTER ONE:

AN ECONOMIC DEVELOPMENT STRATEGIC PLAN

FOR THE CENTRAL NAUGATUCK VALLEY

1.1 INTRODUCTION

1.1.1 THE CHANGING ECONOMY

The Central Naugatuck Valley region is now at a critical juncture. Like many communities across New England, the region has been buffeted by international economic changes that are affecting the types of jobs being created, the location of jobs, and the number of jobs being created. Some of the changes in the U.S. economy that have had an impact on the region include:

- the shift from manufacturing to service jobs with accompanying declines in the quality of jobs;
- the movement from assembly line to smaller flexible production technology requiring higher skills from production workers;
- the increased concentration of financial and non-financial corporate assets in fewer firms; and
- the decline in government defense expenditures.

Responding to these forces, the region has experienced a long period of economic restructuring resulting in shifts in terms of the level and types of jobs, products and services, and capital available to local residents and businesses. A large number of companies that had previously defined the region -- most notably those in the brass industry -- have either closed or moved. They have left behind a legacy of "brownfields" -- old industrial sites with environmental problems -- and dislocated workers. This restructuring has had a serious impact on all residents of the region -- from the low-income residents of Waterbury to the professionals living in Woodbury. For many city residents, the loss of blue collar jobs has meant the disappearance of the primary path out of poverty for those without a college education. The loss of jobs has also had an impact on those in the middle class. During the last recession, white collar professionals experienced the insecurity and dislocation that had previously been primarily

borne by the blue collar workers in the region. From the local bankers who lost their jobs when their banks were taken over, to the professionals laid off as a result of corporate downsizing, to the small business owners who saw their sales decline significantly as disposable income in the region declined, the impacts of the economic decline are being widely experienced. There are few, if any, residents of the entire Central Naugatuck Valley who have not seen their lives affected by the changing economy.

1.1.2 GLOBAL TRENDS AFFECTING COMPANIES IN THE CENTRAL NAUGATUCK VALLEY

Five major trends highlight the significant changes that have radically altered the competitive industrial environment. They present challenges to Central Naugatuck Valley companies. The trends are:

- ***The growing segmentation, globalization, and volatility of markets.*** Mass national markets have been replaced by segmented international markets. The revolution in information processing, transportation, and telecommunication technologies, propelled by divergent consumer tastes, has produced an increasingly niche-oriented marketplace. This segmentation of market has been accompanied by an internationalization of the market.
- ***The change in existing products from standardized to tailor-made.*** Allowed by the introduction of flexible manufacturing technology, product lines have shifted from being mass produced, one size fits all, to being customized to the needs of individual buyers. The flip side of the changes in markets is changes in products. Standard products have given way rapidly to customized products.
- ***The development and diffusion of new, more productive, and more flexible manufacturing technologies.*** Advances in manufacturing technology have allowed the development of flexible, reprogrammable production machinery. The changes in the nature of product markets are driven by and have undergirded fundamental changes in manufacturing technology. The advantage in manufacturing has changed over the past several years from one type of basic skill, being expert at a routine set of tasks, to two skills, being flexible and being able to change quickly.
- ***The rise of agile enterprises.*** Rapid changes in markets, products, and processes are driving enormous changes in the structure of enterprises and the relationships among them. Many firms are shrinking in size, shedding overhead, and stripping away embedded layers of management hierarchy. Businesses must react quickly to rapid demand shifts in volatile niche markets. They must respond promptly to innovation in

technology and to the demand for more specialized, higher-quality, and shorter-lived products. The need for speed and accuracy in that response is driving a general decentralization of organization.

- ***The information revolution.*** Rapid changes in telecommunications and information technologies are transforming the way people live and work. And, we are only at the initial stage of this revolution. For example, the Internet -- known primarily to academic scientists as recently as two years ago -- is now a household word, with millions of Americans going on-line in a very short time period.

The above trends and changes have led manufacturers and economic development organizations to embrace modernization as a guiding principle and practice for manufacturing competitiveness. Modernization places major emphasis on learning and continuous improvement as the keys to manufacturing success. "Magic Bullet" solutions and quick-fix technologies will not sustain the region's industrial base.

1.1.3 THE GOOD NEWS

The residents in the region have been reading about bad economic news for so long that they have, in effect, helped to perpetuate negative images in the region, even as the economy has begun to turn around and there are signs of positive changes. During the past couple of years, while most residents in the region have continued to think that the area is in a continued slide downward, there have been clear signs of economic renewal:

- ***While there continues to be economic uncertainty, the region's economy has recovered; by some measures stronger than the statewide economy.*** The most recent employment statistics for the state of Connecticut show that the Waterbury Labor Market Area added 2,300 jobs between December of 1995 and December of 1996. The percentage growth in employment exceeds every region of Connecticut except one -- the statewide average for this time period was 1.5 percent as compared to 2.7 percent in the Waterbury region. Only the Stamford and New London regions exceeded Waterbury in terms of the number of jobs added.
- ***After experiencing tremendous growth during the 1980s and suffering through a devastating period in the early 1990s, the Central Naugatuck Valley's industrial real estate market is performing well.*** Absorption rates have increased in recent years and the vacancy rate is well under 10 percent. Industrial parks in the region have been successful at attracting new tenants. Captain Neville Industrial Park, for instance, is near 100 percent occupancy. Additionally, many vacant and bank-owned industrial properties have been purchased in recent years.

- ***The most visible sign of the renewal is the new mall that is currently being constructed in downtown Waterbury.*** The decision to develop this mall was based upon private market assessment of the enormous untapped market potential in the region.
- ***The number of unemployed residents has been declining for a number of years.*** Since 1992, the number of unemployed residents in the region has been reduced by close to 40 percent.
- ***Most respondents to our business survey report plans to modernize and expand soon.*** Just over half of the respondents (53 percent) have plans to modernize their facility over the next three years, and 52 percent of respondents have plans to expand their facility in the near future.
- ***Manufacturing has made a comeback.*** After almost two decades of decline, the number of manufacturing jobs in the region has actually increased by 1,000 since 1993. In particular, the region's fabricated metals industry has been adding jobs at rates exceeding that of the state and the U.S. since 1991.
- ***While wholesale trade is a relatively small component of the economy, it has experienced high relative growth in recent years.*** Employment in distribution-oriented activities in the Central Naugatuck Valley Region (CNVR) has been increasing steadily. Thirteen hundred new wholesale jobs have been created in the region since 1985; 300 of these jobs were between 1994 and 1995. Ten years ago, the industry represented 3 percent of total regional employment. In 1995, that figure was up to 4.3 percent.
- ***The region has a strong core of small- to mid-sized, locally-owned manufacturing companies that have become more technology-based and provide state-of-the-art components for the industries of the world.*** Approximately 60 companies in the region could be classified as technology-based. The largest concentration of technology-based firms are involved in the production of electronics and computer peripherals, electrical equipment and supplies, chemicals, surgical and medical equipment, and telecommunication devices.

In addition to these economic signs, the institutional capacity and leadership within the region have been significantly enhanced over the past few years. Both the city and the region as a whole have a large and sophisticated set of institutions involved in a wide range of issues related to the economic lives of the residents and businesses of the area. These include:

- ***The Council of Governments of the Central Naugatuck Valley*** (COGCNV) has been actively promoting regional economic development activity and adding to the knowledge

base in the region. It works with CERC's site finder program, and the Council of Governments also has an inventory of industrial properties. As a result of a strategic planning process that was undertaken in 1993, the organization has created an Economic Development Steering Committee and has developed resource guides for the region. COGCNV's Economic Development Steering Committee sponsored this strategic planning effort.

- ***A Community Vision for Waterbury*** is a grassroots effort initiated by hundreds of volunteers in 1993. The purpose of the group was to create an umbrella organization that could bring together a number of individuals and organizations seeking to improve the quality of life in the city of Waterbury. Visions is a forum for the diverse interest groups in the community. In recent years, Visions has been involved in a number of educational activities including: helping to create Partnership 2000 (see below); helping to create the Screw Machine Training Program; establishing the "Initiatives for Downtown Waterbury" and hiring a Downtown Manager to work on revitalization activities; organizing a sales and marketing consortium comprised of six metal fabrication companies; and underwriting a feasibility study for a downtown civic center.
- ***Greater Waterbury Chamber of Commerce*** provides a range of traditional services to its business constituency. In addition to these more traditional chamber activities, the Waterbury Chamber has been a participant in the Waterbury Partnership 2000. Of most note, the Chamber has helped to publish and widely distribute a magazine and video that highlight the strengths of the Greater Waterbury region.
- ***Waterbury Partnership 2000*** is a public/private organization designed to improve the coordination of economic development activities in the city of Waterbury. The Partnership consists of the Chamber of Commerce, the Visions group, the Naugatuck Valley Development Corporation, and the city of Waterbury. Since its establishment, the Partnership has successfully worked on a number of issues.
- ***The Naugatuck Valley Development Corporation*** (NVDC) is a nonprofit, public/private corporation created over three decades ago to promote the economy of the city of Waterbury. It is the primary vehicle for all economic development efforts by the city of Waterbury. Although it is seen as primarily oriented towards the city, in fact, the corporation has a broader mission and capabilities for working on issues throughout the greater region. In addition to land development efforts, NVDC administers several revolving loan funds for businesses, including a \$3 million regional fund.

- ***The Connecticut Small Business Outreach/Development Center*** is somewhat unique. Like many other SBDCs in New England and in the country, it provides a range of technical services for small and emerging businesses. The services include business planning, marketing, cash flow management, etc. Additionally, the SBDC in the Waterbury area directly assists businesses in loan packaging for equipment, machinery, mergers and acquisitions, and in developing a succession plan. Its ability to offer this higher level of assistance to businesses makes it a very important resource to the region.
- ***Neighborhood Revitalization Zones (NRZ)***. In 1995, the Connecticut State Legislature adopted an act to bring about the economic revitalization of neighborhoods where properties are "foreclosed, abandoned, blighted, substandard, or pose a public safety hazard." The Public Act 340 allows neighborhoods to waive and bypass rules and regulations that impede neighborhood improvements. Waterbury was the first city in the state to enact the Neighborhood Revitalization Zones allowed under the new state law. The zones are a way for residents, businesses, and government to team up for long-term planning regarding housing needs in individual neighborhoods, and will enable neighborhoods to move toward self-sufficiency. NRZ groups are meeting in the following Waterbury neighborhoods: Brooklyn, Crownbrook, Hillside, St. Margaret's, the South End, and Walnut Orange Walsh (WOW). None of these groups, however, has become a full-fledged NRZ yet. They are still in the initial stages of drafting a plan for approval. The South End Neighborhood Revitalization Corporation has drafted a master plan for a significant revitalization, largely based on the need for jobs in the area. The plan emphasizes local business ownership, partnerships with established businesses, on-the-job training, and selected obsolete building demolition. Its effort is, in large part, guided by that of the Walnut Orange Walsh neighborhood, an area with one of the highest levels of poverty in the city, which recently completed a similar initiative.
- ***The Naugatuck Valley Project (NVP)*** was founded in 1984 by churches, unions, and citizens' groups concerned about the changing economy and its impact on residents. The Project organizes around "jobs" issues in the region, focusing on developing strategies around training, job creation, affordable housing, quality health care, preserving the environment, improving public education, nurturing youth, reducing crime, and revitalizing distressed neighborhoods. NVP has helped to create a worker-owned home health care company -- Valley Care Cooperative. More recently, NVP is leading an initiative to identify and redevelop brownfields in the region.
- ***The Waterbury Downtown Initiative (WDI)*** is an alliance of businesses and private citizens founded to create a new mission for downtown Waterbury. WDI's major goals

are to "transform empty buildings into productive assets, create meaningful jobs, and enrich Waterbury's quality of life." Current and past initiatives include: reporting on recommendations to address downtown parking, initiating discussions and ideas about a downtown training center with Briarwood College, exploring development of an information technology zone to attract high tech investment, examining alternative uses for vacant and under-utilized properties, and establishing a downtown buying cooperative.

- ***New Opportunities for Waterbury*** (NOW) is a community action agency for Waterbury and its surrounding towns, administering over 50 social service programs. Among the issues addressed are early childhood education, job training and placement, housing, adult education and literacy, mentoring, and health. One of the newest programs, JOBSFirst, provides job development and placement and job search skills training to AFDC recipients. NOW is also actively seeking to expand its day care facilities and to operate an entrepreneurial training program.

In addition to these resources, other towns in the region have economic development boards or committees working to promote or manage development activities in their communities. While a number (Beacon Falls, Woodbury, Thomaston, and Southbury) have volunteer based commissions, others (Cheshire, Naugatuck, and Oxford) have full-time staff working to promote economic development in their communities.

1.1.4 REMAINING CHALLENGES

While a lot of progress has been made over the past few years, both in building the region's institutional infrastructure and in turning the economy around, many serious challenges remain.

1. Disparities remain between economic conditions in the city of Waterbury and the surrounding towns.

Although economic conditions are improving in the region, the city of Waterbury remains less well off than the rest of the region:

- In the town of Waterbury, households are, in general, less well off than in the region as a whole. In 1989, over 15 percent of the town's households has an income below \$10,000, compared to 7 percent in the rest of the region, while only 7.5 percent of the town's households have an income over \$75,000 compared to 21 percent of households in the rest of the region.

- Waterbury has the lowest per capita income in the region (\$14,209 in 1995).
- Waterbury's median household income, at \$30,533 in 1989, is slightly higher than the national figure of \$30,056, and much lower than that of all other towns in the region.
- In the town of Waterbury, 10 percent of the households received Public Assistance Income in 1989, compared to 2.5 percent in the rest of the region.
- The unemployment rate in Waterbury in 1995, at 7.6 percent, was the highest in the region. Since 1984, the town has consistently had the highest unemployment rate in the region except in 1993 when it fell below Thomaston's rate.

2. *The region's low-income residents face a wide range of barriers limiting their ability to more fully participate in the economy.*

Low-income residents in the CNVR face many of the barriers to employment that are common in other areas of the nation. These include barriers related to the capacity of the individuals (i.e., language barriers and insufficient basic skills) and ones related to failures of the public sector (lack of child care options and inadequate transportation). The following barriers to employment are particularly relevant to the low-income residents of the CNVR:

- ***Child Care:*** Many low-income residents have problems with the availability and cost of child care. The lack of sufficient affordable child care prevents them from taking advantage of employment and educational opportunities. Lack of child care is especially a problem for women in their early 20s who had children while in their teens and are now unable to find a place to leave their children in order to find employment. Moreover, there is a dearth of 24-hour child care service. This type of service is especially important for families with parents working second or third manufacturing shifts, or in some service occupations with evening and weekend hours. Many of these issues are now being addressed in the region and the state. The Governor has recognized that child care is single greatest barrier for welfare recipients, and has doubled funding for child care. New Opportunities for Waterbury provides services to children of low-income parents who are working or in school/training programs and is in the process of building space for an additional 400-slot program.
- ***Discrimination:*** Many people have cited widespread discrimination based on age and ethnicity. The Hispanic population, in particular, faces discrimination in the workplace.
- ***Language:*** The Hispanic community faces an additional barrier -- language. Many of the jobs being created, most notably those in the retail sector, require workers with good English speaking skills. Training programs being developed also require good English

speaking skills. Individuals who do not yet speak English have very limited economic opportunities.

- ***Job Readiness and Post-placement Support:*** One problem noted by staff at the Department of Social Services is that people tend to get either very specific training geared toward a certain position, or they receive very general training and are then sent on their way. Job follow-up and post placement support services are inadequate.
3. ***The region's workforce is falling behind -- many employers in the area feel that many people are deficient in basic skills.***

Results from the survey of businesses provide evidence that employers are facing increasing challenges in finding and keeping qualified employees. Employers believe that the secondary schools do not adequately prepare students for local entry-level jobs. Only 5.5 percent of respondents to the survey believe that the local schools prepare students for jobs very well and 31 percent indicated that they prepare students poorly. Furthermore, interviews with local companies also revealed that illiteracy, as well as communication skills, personal motivation, critical thinking skills, and basic math skills, are issues.

4. ***The region is also facing a shortage of highly-skilled workers.***

Compared to the state of Connecticut, the CNVR region has a smaller proportion of highly-educated residents. A lower percentage of the region's population over the age of 25 has a bachelor's degree or higher than in the state: 21.5 percent in CNVR compared to 27.2 percent in Connecticut. 10.5 percent of the region's population has an educational level below that of 9th grade, similar to the nation's figure of 10.4 percent but higher than the state's 8.4 percent. Several companies need to go outside of the region to recruit highly technical workers.

Historically, however, the region did have a very strong base of highly-skilled, blue collar workers. This core of skilled workers is aging and what has been a competitive strength of the region is now becoming a critical barrier. Respondents to the survey reported that skilled production workers are the most difficult workers to recruit. Interviews with manufacturers confirmed that many of the highly-skilled workers are aging and retiring, or nearing retirement. They report that it is increasingly difficult to replace these workers.

5. ***There is a mismatch between job opportunities available and the interests of residents.***

The labor force in the CNVR has a very negative view of the manufacturing sector, which remains one of the region's strongest sectors. The widespread and misinformed belief that positions in manufacturing are not well paid and involve undesirable working conditions is nefarious both to job seekers who do not even consider the manufacturing sector, and to companies that have difficulty recruiting workers.

Partly due to the lack of proper information regarding the manufacturing sector, there is a discrepancy between what is perceived and what is true regarding the availability of jobs. While manufacturing job opportunities do exist in the region, in many instances, residents are not aware of them, or have a negative perception of the job situation.

Many people are still reluctant to see their children enter vocational/technical school instead of staying on the college path. Even guidance counselors tend to focus on the need to go to college. This emphasis on continued higher education at the expense of vocational training results in people dropping out of college when they decide it is not right for them, or never going to college in the first place, and then not having the basic skills for the workplace.

6. *The existing public transportation does not serve the needs of residents and employers.*

Transportation is one of the most cited barriers faced by residents to gain access to employment, education, training opportunities, and child care. While the transit routes serve most of the towns in the region, decentralization trends have made it more difficult to serve various destinations in the region effectively. Access to training and employment centers is increasingly limited as a result. Moreover, there has been an increase in second- and third-shift employment in recent years. Many of the workers are low-income and lack access to private automobiles. At the same time, bus service throughout the region stops at 6:30 p.m. Consequently, second- and third-shift workers must rely on other means of transportation to work. Finally, the lack of transportation is also a problem for residents who need to drop off their children at day care centers. Because of this, some children have had to drop out of programs.

7. *There is continued fragmentation on economic development.*

Although the region's economic development capacity has grown considerably, it remains fragmented. There is no one entity responsible for overseeing the economic development agenda of the region. While a lot of leadership has been mobilized through Visions and Partnership 2000, the focus of these entities remains on the city of Waterbury. While the Economic Development Steering Committee of the COGCNV does operate regionally, the organization is primarily involved in planning activities, not service delivery. The Mayor of Waterbury, a key political figure in the region, has not become engaged in many of these activities. The result is that while there is considerable capacity, there is still no clear leadership overseeing regional economic development in the Central Naugatuck Valley region.

8. *The region has been left with a large number of "brownfields" -- older industrial sites and buildings with environmental problems.*

While there are many geographic limitations on industrial development in the Central Naugatuck Valley, redevelopment of many of the Waterbury region's brownfields, typically pre-1960 industrial sites with low and medium levels of environmental contamination, represents an economic development challenge. Approximately 168 brownfield sites have been identified

in the Naugatuck Valley. Forty-five percent of these sites are clustered in the Central Valley, which includes Waterbury. The city has the majority of the region's older industrial sites and a number of brownfields. There is limited land available for new industrial development in the city of Waterbury.

The Naugatuck Valley Project is initiating an effort to promote the clean-up and redevelopment of the region's brownfields and has targeted several of these sites for redevelopment, including the former Waterbury Button Factory at 777 S. Main Street, the Sealy Mattress Factory in the Oakville section of Watertown, and the Plume & Atwood Mill Complex in Thomaston.

There remains a perception, especially among many of the real estate developers and brokers in the region, that the cost of cleaning up old manufacturing sites is prohibitive. In recent years, several state and federal programs have been established to assist communities with clean-up of these former manufacturing sites. In 1992, the State of Connecticut developed the Urban Sites Remedial Action Program to conduct environmental reviews and clean up sites for industrial redevelopment. A \$25 million bond fund to support brownfield redevelopment was passed in 1993. Urban sites with "economic development potential" are eligible for state funding.

9. The restructuring of the financial markets has led to the loss of many locally-owned banks and loan officers with a long history and commitment to the region.

As is true of most of the nation, consolidations and mergers in the banking industry have meant that decisions about commercial and industrial lending increasingly are being made by individuals who are no longer based in the Waterbury region. Long-standing relationships between companies and banks have been affected. In addition, the loss of locally-owned banks has left the region with a smaller pool of corporate leaders.

The purchase of Centerbank by First Union Bank of North Carolina is the most recent example of this trend. Many individuals are concerned that this buyout may have an impact on the availability of loans to small firms in the region. First Union is the largest bank in the region with 13 offices and over \$1 billion in local deposits. The bank was also considered by development finance professionals to be one of the region's most aggressive small business lenders. Under its new management, the bank is now undergoing significant personnel turnover at senior levels. There is growing concern that the changes may result in less active lending to local and small- and middle-market companies.

10. The region lacks capacity to provide very small loans to individuals interested in self-employment and home-based business development.

None of the region's development finance or business assistance organizations are explicitly geared to this type of client. While NOW has developed a program to support entrepreneurship amongst its clientele, there is no comprehensive program available to provide financial support to residents interested in starting their own small-scale business enterprise.

11. Downtown Waterbury continues to suffer from high retail and office vacancy rates, and the region as a whole lacks Class A office space.

The Greater Waterbury region is a secondary office market. In 1995, the region's overall office vacancy rate was just under 30 percent, according to the Greater Waterbury Real Estate Report. Class A office vacancies were much lower, around 7 percent. The majority of the region's office space is classified as Class B or C. The lack of quality Class A office space is a constraint. Downtown Waterbury, for example, has only two Class A office buildings and there are only five Class A office buildings in the entire region. There is a significant amount of available Class B and C office space in downtown Waterbury. The perceived lack of quality surface parking facilities, increased crime, absence of entertainment options, and other issues present barriers to downtown redevelopment and the absorption of vacant retail and office space.

12. With increasing absorption rates for available industrial buildings and sites, the region will soon face constraints in readily accessible industrial properties.

According to the Greater Waterbury Real Estate Report, the industrial market vacancy rate was between 8.4 percent and 8.8 percent in 1995. The vacancy rate was much lower for post-1960 buildings, at 4 percent. The region has a significant number of modern buildings that were constructed in the last 20 years. Many of these facilities are single story structures that are functional for modern manufacturing. Pre-1960 structures tend to have a vacancy rate in the 10 to 15 percent range.

While sites exist for new industrial development, available parcels are limited, particularly in certain towns in the region. The topography (wetlands and mountains) in certain areas also limits the development of some regions that are zoned industrial. The major example is the Reidville Industrial Park in Waterbury where most available parcels are too rocky to develop.

1.1.5 BUILDING ON EXISTING STRENGTHS

1. A prime location and transportation infrastructure for serving the Northeast Market.

The Waterbury Region is well situated in terms of serving the New England and Northeast Market. Interstate 84 is a major east-west route that provides ready access to both the Boston and New York metropolitan areas. Route 8 provides north-south access to I-95 and I-90. According to the respondents to the Mt. Auburn Survey, highway access was perceived as the most positive factor affecting business conditions in the region. On a scale of 1 (positive) to 3 (negative), highway access scored a 1.37.

2. A core of skilled production workers.

Although there is concern about the aging of the workforce and manufacturers are facing a growing challenge in filling skilled positions, the region still has a core of highly productive and skilled manufacturing workers. It needs to build on this core strength by increasing the

number of individuals in the region with these skills and ensuring that there is a new generation entering the workforce with these skills.

3. Reputation for manufacturing excellence and resources for manufacturing.

The Central Naugatuck Valley maintains a strong manufacturing base, with more than 600 firms located throughout the region. While the state's manufacturing employment continues to decline, the region's manufacturing job base has stabilized and actually expanded slightly in recent years. The CNVR has added roughly 1,000 manufacturing jobs since 1993. The largest job gains have occurred in the fabricated metals and machinery and electrical equipment industries. The region is generally perceived internationally as one of the centers of high quality precision manufacturing.

The image of the region in terms of its manufacturing strengths is further enhanced by the organizations that have been involved in strengthening the region's industrial base. The number of institutions and organizations that provide training resources for the manufacturing community is impressive in scope and quality and they are briefly described here:

- ***The manufacturing sub-committee of Vision's Economic Development Task Force*** has been at the forefront of organizing manufacturers and developing training programs in the greater Waterbury area. It has relied on the work of a few volunteers to accomplish a great deal in the last year.
- ***The Connecticut Business and Industry Association's (CBIA)*** leadership throughout the state and its involvement regionally have been helpful in framing the importance of a high-skilled workforce. The CBIA has acted on legislation that affects the manufacturing community throughout the state, it has a Manufacturers Council to advocate on behalf of industrial firms, it sponsors roundtables and seminars on key topics, and it is developing a council that focus on careers in manufacturing.
- ***The Connecticut Department of Labor*** has undertaken a major re-engineering of its role and its programs for helping manufacturers find and train skilled workers. Its Waterbury office has recently helped several manufacturers with workforce access, its Customized Job Training Program (\$1.2 million statewide) offers financial support for companies that wish to tailor a training program for its workforce, its Apprenticeship Training Program provides tax incentives for companies that enroll workers, and its Work Force Connection program is a computerized and streamlined service that helps companies and individuals make the right employment match.

- ***The Connecticut Development Authority*** has a Job Training Finance Program that provides loans to manufacturers who cannot afford to cover the costs of a workforce training program.
- ***Vision's manufacturing sub-committee, the Naugatuck Valley Project, the Institute of Industrial Engineering and Technology, the Department of Labor, CBIA, the Connecticut Skilled Trades Association, and the Waterbury Adult Continuing Education Department*** have all collaborated on an exciting initiative to train area residents (employed and unemployed) for work in the screw machine industry -- and a similar program is just underway for the eyelet industry.
- ***Naugatuck Valley Community Technical College*** offers computer, engineering, production, and technology education through its credit and degree programs, its certificate programs, and the courses and customized training programs of the Center for Business and Industry and Continuing Education. The college works with both individual companies and clusters of companies like the plastics industry.
- ***Kaynor Vocational Technical School*** has a metalworking and machining program that graduates 12 to 14 students a year. Students get hands-on production training in the machine shop, as well as computer-based machining on the school CNC machine. Kaynor has an Adult Education Program that offers machine tool and machine technology evening courses during the September to June school year. Approximately 16 to 18 people go through the program each year. Kaynor also offers a state-approved apprenticeship training program. Over 100 people are enrolled this year from eyelet, screw machine, plastics, instruments companies, and job shops. Finally, Kaynor occasionally provides customized training to individual companies as it did recently for a group of engineers at Sikorsky Aircraft.
- ***The Institute for Industrial and Engineering Technology (IJET)*** provides a number of resources to manufacturers. The IJET contributed \$10,000 to the training program for the screw machine industry. IJET also has a Technical Training Center that offers customized, flexible training in process technologies, CAD/CAM, geometric tolerancing, and other quality and engineering applications.
- ***The Industrial Management and Training Institute (IMTI)*** is a private institution that offers apprenticeship courses and training for licenses in HVAC, electrical, plumbing, electronics, and wastewater treatment. Short, specialized classes are also offered. IMTI is creating a manufacturing incubator at its Freight Street site. In addition to space, the

incubator will provide training and support to other small manufacturing firms in the region.

- ***The Naugatuck Valley Deployment Research Program*** (NVDRP) is a manufacturing support and training initiative sponsored by CONN/STEP and Connecticut Innovations, Inc. The Program works with the Emmett O'Brien Vocational Technical School (EOCTS) and the Institute for Industrial Engineering and Technology (IIET). Its industrial focus is currently on the plastics industry, although the program's mission is also to work with metalworking and high technology manufacturers. The program has a strong training component that includes apprenticeship training, summer internships for teachers, curriculum development and hands-on machine training for high school students, a program to train welfare mothers for careers in non-traditional jobs, and a comprehensive set of classes and credit programs through the Naugatuck Valley Community-Technical College. Additionally, NVDRP has support programs and services that are designed to raise awareness of the plastics industry in the region and make the industry a globally competitive sector.
- ***The Connecticut Skilled Trades Coalition*** is a collaboration of several companies, manufacturing organizations, training institutions, and community organizations. While the Coalition itself does no training of its own, it marshals resources, applies political leverage, and raises public awareness about the need of Connecticut manufacturers for a highly-skilled workforce. The Coalition, for example, was one of the sponsors of the screw machine industry training program.

4. Availability of labor.

Although accessing highly-skilled workers is a growing problem, the region is still perceived as having a relatively large pool of potential workers. Employers find that filling relatively low-skilled positions is not difficult. In fact, respondents to the Mt. Auburn business survey ranked the availability of labor as the third most positive factor related to doing business in the greater Waterbury region.

5. Current construction boom -- the Brass Mill Center Mall and other construction activity.

The Waterbury region, in particular the city, is in the midst of a construction boom. The most visible element of this boom is the construction of the new Brass Mill Center Mall. This \$120 million project is generating short-term jobs during the construction phase as well as about 2,000 permanent jobs. In addition to the mall, public investments of between \$100 million and

\$172 million are being made in four other major public investment projects -- a sewage treatment facility, state courthouse, state office building, and, potentially, the revitalization of the Palace Theater into a convention center with commercial spin-offs. This construction activity provides enormous opportunities for the region. Not only are construction jobs being created, but these projects should have a positive impact on downtown development.

6. *Employment support services and education and training infrastructure.*

While gaps and challenges remain, the region has a strong education and training infrastructure that provides opportunities for lifelong learning. In addition, the region has nonprofit organizations that have been innovative in their approach to providing employment support services. This infrastructure will be critical to ensuring that the region has the workforce needed to compete in the next century.

- ***Cheshire, Naugatuck, Waterbury, and Thomaston offer fairly comprehensive adult education courses in the evenings at their middle and high schools.*** The courses offered include Adult Basic Education, GED preparation, English as a Second Language (although none of the ESL programs are very job-oriented), workplace readiness skills, computer literacy, and math competency. The Waterbury Adult Education Center also offers classes in citizenship, CNA certification, phlebotomy certification, auto screw machine training, and family literacy. The Thomaston program includes food handlers' certification. The Waterbury and Thomaston centers, serving a total of over 4,000 residents, are used especially by Latinos and African-Americans.
- ***New Opportunities for Waterbury has received funds from DSS to be used to provide job development, job placement, job retention, and job search skills training services for recipients of AFDC.*** The program (JOBS First) receives weekly referrals of about 30 participants who receive orientation, intake/assessment, referral for job search skills training (conducted by Waterbury Opportunities Industrialization Center, Inc.), and are assisted with job search, day care, and transportation issues.
- ***Community Employment Incentive Program (CEIP) is a grant program for Connecticut municipalities that provides funding for employment placement projects for recipients of General Assistance.*** It includes job readiness assessment and training, job search training, job placement, skills training, education, and transportation assistance.
- ***Work Force Connection is a nonprofit organization that receives state and federal funds to help individuals with employment and training needs.*** Under the JTPA, funds are allocated to provide classroom training programs in basic education, literacy,

occupational skill training, and on-the-job training apprenticeships. The organization's Summer Youth Employment Program for youth between the ages of 14 and 21 helps improve the employability skills of participants.

- ***Multi-skill Educational Training Center provides assistance with job development,*** including interview techniques, job search skills, resume and cover letter writing, and job referrals. METC operates under auspices of the Waterbury Board of Education and offers the following programs: basic skills (reading, math), business introduction, GED, medical secretary program, office occupations, and computerized bookkeeping.
- ***The Waterbury Remediation for Employment Project provides financial assistance for the education of individuals with remediation needs in the Waterbury LMA.*** This training can enhance the individual's ability to find employment. Contributions made by businesses to the program fund the training. In turn, the donor receives corporate income tax credits.
- ***Both the Waterbury Public Schools and the Cheshire Schools have developed innovative programs with local employers.*** The School to Career program run by Cheshire Public Schools has developed many partnerships -- about 300 per year, 250 of which are constant. Some just involve one person coming to speak in schools, others are all-out partnerships with large companies that hire students for internships. All elementary and middle schools have Career Days. There is also a senior internship program, 10 weeks, part-time in business relevant to interests. In Waterbury, there are 100 partnerships in three main areas: allied health/medical careers; technology/manufacturing; and culinary arts. Middle schools all have career days, mentors, job shadowing, career counseling, and guest speakers.

7. Low costs relative to other sites in the Northeast -- particularly in Fairfield County and New York.

Both residents and businesses in the Waterbury region (as well as in most of Connecticut) tend to focus on the high costs of doing business in Connecticut. On a number of measures this is the case. However, when looking at the cost competitiveness of the Waterbury region it is important to consider who the competition is. It is true that when compared to many other states in the U.S. or other countries certain costs are high in the region. If Waterbury is to compete for industrial expansions and relocations with Mississippi or South Carolina, it will clearly be unable to match many of the costs of doing business in these states. However, for the high end precision machining industry, the major competitors are more likely to be in Ohio or California. For distribution-oriented companies that need to be in the Northeast or New England, the

competition is likely to come from Dutchess County, New York or Worcester, Massachusetts. And, for companies headquartered in Connecticut looking for expansion sites close to their headquarters, the competition can be from towns in Southern Fairfield County.

In addition to thinking about *who* and *where* the competition is, it is critical to think about the overall needs of businesses in different industries. For precision manufacturers, the skills of the labor force are an investment decision factor that is probably at least as important as business taxes. Many companies have found that the high cost of labor can be justified on a cost basis if it leads to higher levels of productivity and reducing the costs associated with uneven quality in the products being produced. Thus, in thinking about the costs of doing business it is important to understand with whom you are competing as well as the entire needs of the companies in the sectors being targeted.

In terms of business costs, when you compare the overall cost structure for businesses in the Waterbury region to many competing sites in the Northeast, there are actually cost advantages in the region. In addition to relatively low costs for industrial land and buildings, labor costs and other business costs are lower than in many other locations in New York and New England. In addition, the incentives provided through the State's Enterprise Zone Program have further improved the cost competitiveness of many sites in the Waterbury region.

8. A strong infrastructure of industrial parks.

The region has a tremendous industrial park infrastructure, with more than 20 parks located in the 13 towns. Overall, the CNVR's industrial market contains over 19.5 million square feet of industrial space. Waterbury has the largest share of the region's industrial space, with more than 7.1 million square feet.

The greatest potential for further industrial development resides in Cheshire, Naugatuck, Watertown, and Middlebury. There are limited industrial vacancies in Beacon Falls and some towns have very limited industrial development activity, such as Southbury and Woodbury. Oxford currently has limited industrial development, but its location along I-84 and recent investments in water, sewer, gas, and telecommunications infrastructure, have enhanced the town's industrial development potential.

In addition, several towns in the region are planning expansions of their industrial parks. Most brokers in the region anticipate that an increasing number of build-to-suit facilities will be developed in the region, especially given high absorption rates in recent years. Captain Neville Industrial Park in Waterbury, for instance, is near 100 percent occupancy.

Older industrial sites represent tremendous potential for the Waterbury submarket, but local developers anticipate that it will take a number of years before redevelopment of brownfields takes hold in the region, largely due to perceptions about the external costs associated with these sites.

While some towns in the region have few prime sites available for new development, a number of towns have an abundant supply of industrial land. IBM owns over 1,000 acres of land in Middlebury that the company has recently started to market for industrial development. Timex recently purchased 60 acres of this land for its new corporate headquarters. Oxford has a 62-acre parcel adjacent to the airport and many smaller parcels that were recently put on the market. Additionally, there are many pre-1960 structures throughout the region that remain vacant. As absorption rates rise, there is greater potential for these sites to be redeveloped.

9. A relatively competitive banking environment that is more actively competing for the small business market.

While there is concern about the loss of local ownership and the implication on smaller businesses, the region still maintains a relatively competitive banking market. Nineteen banks have offices in the region, including large money center and regional banks, medium-sized statewide banks, and small locally-based banks. The region's banking resources are broadly distributed among these banks -- the largest bank holds only about 25 percent of the region's deposit base. The large number of competitors in the marketplace gives businesses a range of choices in developing banking relationships. While the availability of financing remains a concern for some companies, only about one in six of the respondents to the Mt. Auburn business survey considered the availability of bank loans as a negative factor in the region's business environment.

10. Political attention by state government.

Governor Rowland, who comes from Waterbury, is often quoted as saying that Waterbury is the "Center of the Universe." His commitment to the community is clear and he has helped to leverage attention and target resources to the area. It is important that the community use this leverage to support a long-term strategy rather than to become overly focused on individual projects.

1.1.6 PRINCIPLES IN STRATEGIC PLAN DESIGN

- 1. A broad definition of economic development needs to be promoted that links three approaches used in efforts to improve the economic lives of individuals:***
 - ***Traditional economic development strategies focused on developing work opportunities through promoting business startup, expansion, retention, and attraction.*** Communities have used a wide variety of economic development "tools" to create or retain jobs. It is these tools, such as financing programs, tax incentives, large-scale real estate projects, infrastructure investments, marketing activities, small business incubators, and business assistance programs, that have often come to define economic

development activities in a community. These efforts are referred to as the "demand" side of the employment picture.

- ***Workforce support policies and programs aimed at ensuring that individuals are able to work, ready to work, qualified to work, and able to secure work.*** The "tools" used to support the workforce include education and training, as well as a range of activities focused on support services and employment brokering. These activities are referred to as the "supply" side of the employment picture.
- ***Community development policies and programs aimed at revitalizing a specific geographically defined community.*** The "tools" used in community development have included housing development, commercial revitalization, real estate development, and self-employment. Increasingly, community development efforts are also focusing on building the "social capital" in the community through community building activities.

2. Focus this strategic planning effort on the following goals:

- ***Strengthen the regional economy.*** The region as a whole has suffered job loss and economic decline in recent years that have resulted in fewer employment opportunities for residents in all socioeconomic groups and increased fiscal pressures on many of the region's individual communities. In order to increase opportunities for the most economically disadvantaged residents, the regional economy as a whole must be strengthened and new businesses and jobs created.
- ***Ensure that economically disadvantaged residents share in economic opportunities.*** As evidenced by the boom of the mid-1980s, a strong regional economy alone does not translate into economic opportunities for the region's most disadvantaged residents. Strategies must be implemented that overcome the barriers individuals face in getting and keeping decent jobs.
- ***Support the viability of downtown and inner-city neighborhoods.*** The view is widely held among regional economists that the economic health of central cities and their surrounding suburbs are closely related. Without an economically healthy downtown and socially healthy inner-city residential neighborhoods, the region as a whole is unlikely to reach its full economic potential. Moreover, without these conditions, the quality of life for those who must or choose to remain in the city will remain substandard. Political divisions and fiscal inequities within the region tend to reinforce and deepen economic

disparities and social divisions. Therefore, efforts must also focus on achieving and maintaining healthy economic and social conditions within the central city.

3. Focus on employment opportunities that either provide a family wage or offer ladders that could lead to family wage jobs.

While there are many actors in the state and in the region who are developing initiatives that focus on job creation, few of the efforts pay sufficient attention to the quality of jobs being created and the match between those jobs and the skill base of residents. Creating entry-level jobs for low-income residents with a limited skill base and limited job experience should be part of the region's economic development agenda. However, it is also important to think beyond the entry-level jobs by addressing career ladders and skill upgrading. A strategic plan for the region should address job quality issues and not assume that providing entry-level jobs will be sufficient to allow families to improve their economic conditions. While entry-level jobs are a critical component of the economy, there needs to be acknowledgment of upward paths and potential for skill upgrading.

4. Support and strengthen existing capacity before supporting new programs or organizations.

Economic development efforts already suffer from fragmentation and duplication. It is important to consider how existing activities can be extended or strengthened before establishing potentially duplicative efforts or investing in new or small efforts that will encounter difficulty achieving scale and having impact. Rather than creating new organizations or parallel strategies, this plan seeks to support and strengthen the efforts already underway and focus on a few areas of recommendations.

In addition to the strategies developed in this plan, it is important that regional leadership acknowledge and support other ongoing efforts that are critical to the region's economic future. These include (but are not limited to):

- the important work of the Downtown Initiative;
- the work of the Neighborhood Revitalization Zones;
- the brownfields redevelopment study being developed by the Naugatuck Valley Project;
- the education reform and school to work efforts going on throughout the region;
- charter reform activities;
- welfare to work initiatives being developed in the region;
- the Freight Street Industrial Incubator; and

- the retail training and entrepreneurial support program being designed by Work Force Connection.

These activities already have momentum and plans behind them. We believe they should receive the full support and attention of public and private sector leaders in the region and should be considered an integral component of any long-term economic development agenda in the Central Naugatuck Valley.

5. Concentrate attention on a few strategic areas.

Given the ongoing activities in the region, Mt. Auburn focused on areas where we believed our research and experience could add value. This led us to four key strategic thrusts that are expanded on more fully in the remainder of this report:

- I. Maximize the region's core economic strength -- manufacturing.***
- II. Build upon existing opportunities in retail and construction activity.***
- III. Develop a more strategic approach to industrial recruitment.***
- IV. Promote a new regional vision and spirit of cooperation.***

CHAPTER TWO: MAXIMIZE THE REGION'S CORE

ECONOMIC STRENGTH -- MANUFACTURING

2.1 OVERVIEW OF STRATEGY

The Waterbury region has already developed a comprehensive and effective network of resources to support its manufacturing base. These resources are unusual in their level of sophistication as well as their responsiveness to the needs of companies. The following recommendations seek to further strengthen this support infrastructure and fill remaining gaps. Most critically, the strategy is a means of focusing the attention of residents, political leaders, and educators on the importance of manufacturing to the region and reinforcing an image of the region as a international center of a technology-based precision manufacturing industry.

2.2 JUSTIFICATION

Manufacturing continues to be a cornerstone of the CNVR economy. Companies are growing and jobs are being added. Strengthening this important component of the regional economy is critical to the region's long-term economic viability. Among the reasons for focusing on manufacturing are the following:

- although manufacturing experienced a serious decline in employment from 1985 to 1993, it still represents 22.3 percent of the total employment base in the CNVR;
- almost 1,000 manufacturing jobs have been added since 1993, most of those in the fabricated metals and machinery industries;
- wages paid by manufacturing companies are higher than most other sectors in the regional economy. The manufacturing sector contributes more than \$650 million in annual payroll earnings in the CNVR, outpacing every other sector. While manufacturing employs only 22 percent of workers, it contributes more than 28 percent of regional earnings. In contrast, the service sector employs roughly one-third of the workforce, but accounts for only 26 percent of regional earnings. In 1994, the average weekly wage in manufacturing was \$694, higher than most other sectors, with the exception of wholesale trade;

- the survey of manufacturing firms conducted by Mt. Auburn Associates indicates that fewer than 2 percent of the region's firms are defense-dependent -- an indication that the majority of firms have taken appropriate steps to diversify their markets and customer base;
- the survey also shows that more than half of the firms have grown in the last three years, both in terms of sales revenues and employees -- a strong indication that the manufacturing base is in a slow but gradual growth mode;
- firms that responded to the survey anticipate that they will be hiring another 1,600 full-time workers by 1999 -- when other firms in the region that did not complete the survey (approximately 400 companies) are taken into account, the figure of 1,600 jobs could be increased, conservatively by 50 percent; and
- finally, slightly more than 50 percent of the firms that responded to the survey noted that they will be modernizing and expanding their facilities in the next few years.

Note: A detailed profile of the region's manufacturing base is included in Appendix D.

2.3 BARRIERS

Through interviews, data, and the business survey, it is clear that manufacturing firms face a number of obstacles to continued growth and job creation. These barriers are as follows:

- *The shortage of highly-skilled workers is making it difficult for firms to take advantage of new orders and markets* -- workforce difficulties, in effect, have the potential of stifling the growth that has recently occurred.
- *While there have been efforts made to address the skilled workforce shortage (the most notable is the training collaborative developed for the screw machine industry), there is no comprehensive system in place to produce a critical mass of new, younger, skilled workers.*
- *While many companies have adopted new production technologies and have developed programs to train and upgrade workers, the marketplace is fiercely competitive and these same companies will need to make continuous investments to stay on a "modernization" track.*
- *Because the region's manufacturing base is essentially a subassembly economy, there will need to be more of an orientation among all companies in the region on markets, quality, and inter-firm cooperation (the nuts and bolts of finding and keeping a diverse customer base) -- this is something that small, locally-owned companies need help in.*
- *In spite of the gains in manufacturing employment, the high wages that are paid, and the improvements to the manufacturing environment, the public perception continues that manufacturing is declining and the shop floor is a "dirty" place to work.*
- *As a result of the public perceptions and attitudes about manufacturing, Kaynor Tech School sees annual enrollments in its machine and manufacturing program of only 12 to 14 students per year.*
- *While there are a number of very effective state, university, and college resources available to the region's manufacturers, each of these resource organizations is working independently with companies and there is no currently available capacity to coordinate the services of these resource organizations and maximize efficiencies.*
- *The current approach to marketing manufacturing services misses many manufacturers that need assistance.* The resource organizations that are designed to assist manufacturers market their services either through a wholesale approach (e.g., mass mailings, presentations at workshops and conferences, advertisements in selected

publications) or they take the word-of-mouth approach and try to reach as many individual companies as possible. Clearly these approaches have been successful to a degree because the resource organizations have a presence within the manufacturing community in the region. Nonetheless, these approaches also have limitations. The wholesale approach often misses the target because companies are not familiar with the resource organization or the marketing material does not find its way to the right person within the company. The more direct word-of-mouth approach is time consuming, costly, and limited because it does not reach a critical mass of companies.

- ***The current routes and schedule of the region's public transportation system make it difficult for low-income people (particularly those without cars), to pursue employment with some of the region's employers, particularly those that are running second and third shifts.***

2.4 OPPORTUNITIES

There are many jobs available among manufacturers in the region, and companies have demonstrated an ability to expand markets and to increase sales. Opportunities exist to capitalize on those strengths of the industrial base. They are:

- ***A number of manufacturing firms in the region have begun to take an active and aggressive leadership role in developing new training programs targeted to skilled workers.*** As noted, the screw machine industry has worked closely with the NVP, the Waterbury Adult Education Department, Visions, Partnership 2000, the State of Connecticut's Department of Labor, and the Institute for Industrial and Engineering Technology. A similar program is now being planned for the eyelet manufacturing sector.
- ***Overall, the training infrastructure appears to be in place for developing a more integrated system for preparing skilled workers.*** The elements of the infrastructure include Kaynor Tech (apprenticeship, adult education, and secondary education), the Naugatuck Valley Community-Technical College (certificate, non-certificate, customized, and credit programs), the Waterbury Adult Continuing Education Department, Visions, Partnership 2000, the State DOL, and support from NVP, the Institute, and the Industrial Management and Training Institute. Also, the training program developed for the plastics industry by the Naugatuck Valley Research and Development Program could serve as a model.

- ***Beyond training, several additional resources are in place that can help small- and medium-sized firms with finances, management help, and engineering and technology assistance.*** Each of these resource organizations has a track record with companies in the region. These organizations include the Connecticut SBDC, CONN/STEP, the Institute of Industrial and Engineering Technology, the Precision Manufacturing Center at UCONN, the CBIA, area chambers, and Teikyo Post University. The challenge here is to stimulate more demand for these resources.
- ***Manufacturers in the region have formed associations and engaged in joint ventures -- an indication that industrial firms are developing a culture of cooperative problem-solving.***
- ***Support systems within many of the towns in the region and the city of Waterbury are also developing a strong and productive relationship with manufacturers.*** Towns have economic development coordinators, town managers who provide assistance, and the city has the Naugatuck Valley Development Corporation -- they help manufacturers with permits, expansion plans, relocations, and locating good manufacturing land and sites.
- ***The region is really blessed with a rich and diverse manufacturing base that is productive and quite sophisticated -- helping the region's citizens and elected officials develop a more informed appreciation for the wealth of this resource would mean a great deal to the image of the manufacturing base.***

2.5 RECOMMENDATIONS

The level of activity and support for manufacturing in the region is very impressive. Few regions in New England are devoting as much attention and as many resources to strengthen the industrial base as the Central Naugatuck Valley -- local, regional, and state organizations are all involved, from both the public and private sectors. In this context, Mt. Auburn Associates offers two key points that guide the recommendations. First, the recommendations essentially build upon and extend what is already occurring; the region is not starting from scratch -- it has a solid foundation in place. Second the recommendations are intended to help the region take better advantage of the abundant, but uncoordinated, resources that are in evidence there.

- 1. POSITION THE CENTRAL NAUGATUCK VALLEY AS A CENTER OF MANUFACTURING PRECISION AND VITALITY.**

In numerous discussions throughout this project with citizens, business leaders, educators, training professionals, and elected officials, there was a commonly defined need -- the region needs an identity and a niche for its economic future. From all of the research undertaken in the last four to six months, Mt. Auburn Associates feels strongly that the niche is quite clear. The Central Naugatuck Valley Region is an extremely rich and diverse manufacturing community. Indeed, many of the older and larger brass companies have closed their doors, but in their place has emerged a group of small- and medium-sized companies that are clean, sophisticated, and market-oriented. These firms are growing and will likely continue to grow. In fact, there are few regions in the Northeastern United States that can boast of an industrial base that is as vital as that found in Central Naugatuck Valley.

The region's residents need to be educated about this rich manufacturing resource and an all-out effort made to retain the base and help it to expand. Some very good support systems are already underway (see elsewhere in this report) and more can be developed. The following recommendations are intended to build upon what currently exists in the region to support manufacturing, but they also extend and broaden those efforts.

Mt. Auburn would like to point out that while the recommendations that follow are directed toward the goal of positioning the region as a center of manufacturing, the region's public and private sector leaders should use them as a springboard. The envelope should be pushed, so to speak. The region should also draw upon the intellectual and creative talents that exist there and effectively create one of the strongest and most competitive manufacturing foundations in the Northeast.

- ***Create an informal (to begin) Manufacturers Leadership Group with representation from all manufacturing industrial sectors in the region.***

At the moment, firms in the region belong to numerous manufacturing-related organizations and associations -- the Connecticut Business and Industry Association, the Manufacturing Alliance of Connecticut, the Smaller Manufacturers Association of Connecticut, the Connecticut Tooling and Machining Association, the Precision Metalforming Association, the Precision Machined Products Association, and others that are regional, state, and national in scope. As important as these associations are, none of them creates a forum to address issues and opportunities that are of major importance to all manufacturers in the region. The proposed leadership group would conceivably address the issues and opportunities that confront firms in the region, and do it in a coordinated fashion. The issues would include, but not be limited to, the following:

- building upon and expanding the training initiative already underway with the screw machine and eyelet industries;
- planning and developing a more comprehensive and systemic training program that would start with entry-level skills and lead to an advanced, upgrading and continuous education program for existing workers;

- articulating a vision and an image of the manufacturing community within the region -- this message should communicate how vital the manufacturing base in the region is and how new computer-based production machinery and other improvements on the shop floor have created a new environment in the industrial workplace; and
- continuing to work with Kaynor Tech, Waterbury's Technology Education program, and other industrial arts teachers and guidance counselors in the region to upgrade the image of manufacturing and begin to rebuild the prestige once associated with the skilled trades.
- ***Create a position of industrial organizer/coordinator for the Central Naugatuck Valley Region.***

The organizer's position is essential. It would bring much-needed capacity to the volunteer work that is now being undertaken, it would provide more outreach capability and, therefore, bring more manufacturers into the organizing efforts that are underway, and it would serve as a vehicle for coordinating and streamlining the multiplicity of resource organizations that are working with area manufacturers. The organizer would perform several different functions:

- serve as a support staff for the previously mentioned manufacturers' leadership group. The leadership group will need someone to implement the program and project ideas that emerge from it;
- serve as a linkage and outreach support system to stimulate demand for the regional and state manufacturing resources. The industrial organizer can help quantify the role that manufacturing plays in the region (in part, by using information from this report) and then encourage local and regional officials to assist in the effort to strengthen the manufacturing base. The industrial organizer can help resource organizations overcome the marketing barriers noted. He/she can help stimulate demand for services by working with individual companies and clusters of companies, help to better target the resources to companies that need the services, and generally provide a high profile for the resource organizations;
- work with existing chambers of commerce, local development organizations, and town managers and economic development coordinators to help the region's elected officials recognize the critical importance of manufacturing to the region's long-term economic viability; and
- finally, the industrial organizer can encourage and support initiatives among manufacturers to engage in strategic alliances or cooperative marketing. One very good

example of a joint marketing effort is the Connecticut Metal Components, Inc. This is an initiative among six precision metalworking firms in the region to help them penetrate export markets. More initiatives like this could be developed.

2. INCREASE PUBLIC SUPPORT FOR MANUFACTURING AND INTEREST IN MANUFACTURING CAREERS WITHIN THE REGION.

As noted, there is a lack of appreciation of manufacturing in the region. In the past, the youth of the region saw manufacturing as a viable career option. Manufacturing was perceived as providing relatively high quality jobs and opportunities for advancement. As the sector declined regionally and nationally, the perception changed. Students in high school no longer looked to manufacturing as a career of choice. The general perception now is that manufacturing jobs were "dirty" and that the future was in the service sector and technology based companies. The change in the manufacturing sector - with its growing technological orientation has not been recognized. As a result, as the current skilled work force retires, there are few skilled workers to take their place. Jobs that offer good wages and benefits are going begging, while non-college bound youth are either moving or seeking lower paid jobs in the service sector. Unless the perceptions of manufacturing changes, it will be difficult to attract young people into the training programs that are being developed. The region needs to build a new "image" of manufacturing. We recommend:

- *Produce a high quality, four-color profile of the region's manufacturing base as a means of broadening and enhancing the image of manufacturing.*

The profile would be an important visual effort to change and improve the image that manufacturing has in the region. A printed high quality, four-color production of four to six pages would be much more effective than other promotional tools (like a video production) in reaching a critical mass of people in the region. A local eyelet manufacturer has produced a good example of what the profile could look like. The company's profile has photographs of the plant, and some of the equipment in the facility, a description of the company's services, products, and capability, and a brief description of the company's markets. The profile presents the image of a clean, modern, and sophisticated manufacturing firm.

The regional profile should include a similar format and design and focus on a range of companies. The content should include a narrative description of the diversity of the manufacturing base, the range of products and services offered by companies in the region, the kind of skills and occupations found in companies, careers paths, and examples of the extremely broad range of commercial and consumer markets that Central Naugatuck Valley companies serve. The CBIA has produced some materials that are designed to enhance the image of manufacturing across the state. CBIA should be looked upon as a resource.

Copies of the profile should be distributed to local and regional officials, public school teachers and guidance counselors, banks, neighborhood and citizen groups, education and

training institutions, human and social service agencies, and parent teachers organizations. Again, the intent is to help improve the image of manufacturing in the region by educating key constituencies about the profound change that has taken place in the manufacturing environment.

- ***Build an institutional relationship between the region's public schools and the manufacturing community.***

There are several visible and well-received school-to-work programs in the region -- one in Waterbury and one in Cheshire. The purpose of these school-to-work or school-to-career initiatives is to engage employers in a given region to help school-age young people better understand the world of work and the range of career choices that are available to them. Also, the Waterbury School System's Technology Education program has arranged field trips to area manufacturing firms for small groups of students, and "externships" that give teachers and guidance counselors direct experience of the manufacturing environment are in the planning stages. These are very important initiatives that should be continued.

The intent of this recommendation, however, goes beyond the issue of careers and career choices and attempts to build a more institutional relationship between the region's manufacturing community and all of the public schools in the region. It is directed at giving manufacturing and manufacturers an ongoing and visible presence in the region among the education community and it also attempts to enhance the image of manufacturing.

There are a number of different initiatives that could be undertaken by the manufacturing community that would lead to a strong and productive relationship with the region's public schools. The following list is by no means exhaustive. Other projects and programs could be added.

- a mentoring program that links engineers, toolmakers, and machinists in area plants with young adults interested in math and science;
- a summer internship program that would offer employment to teachers, guidance counselors, and students who are old enough to work;
- a "manufacturers' open house" that is held in the fall and again in the spring of the school year, targeted to school children and young adults, parents, teachers, guidance counselors, and elected officials;
- a scholarship program sponsored by area manufacturers that would help defray tuition costs for students or adults who want to take advantage of some of the certificate, non-certificate, and credit courses offered in the region (some firms are already doing this, but it a very low-profile effort and confined to a few companies);

- creation of a speakers group from the manufacturing community that would provide schools with a list of people who could address a range of topics that surface in science, industrial arts, math, and the region's industrial history (the talents and skills of people who own and work in the region's manufacturing plants are extraordinary and this initiative would highlight some of the unique contributions that these individuals can and have made to the region); and
- creation of a curriculum unit for schools that introduces all children to the region's manufacturing base -- the unit could include videos, interactive exhibits, and narratives that build upon the school programs offered by the Mattatuck Museum.
- ***Encourage the Waterbury Republican to create an ongoing profile of the region's manufacturers.***

The newspaper has published profiles of manufacturing firms, but not in a sustained or structured fashion. Mt. Auburn is recommending that the newspaper publish a weekly or bi-weekly column on the region's manufacturing firms. The column would profile companies, the products they make for consumer and commercial markets, the computer-based machinery and equipment used in the production process, and the occupations and skills of the workforce. Some companies in the Central Naugatuck Valley have world-class operations and they have a global customer base. Relatively few people in the region are aware of the complexity and the sophistication of this industrial base -- an ongoing feature in the newspaper could address this issue, and it could significantly enhance level of the region's "manufacturing literacy."

- ***Develop and promote exhibits of the products of the region's manufacturers.***

The number of products and parts that are manufactured in the Valley is extraordinary. Manufactured items from the Valley find their way into the aerospace, automotive, cosmetic, electronics, computer, and other consumer industries. Exhibiting and displaying this impressively diverse set of manufactured goods would help the region's elected officials, parents, teachers, and business people appreciate the richness of the industrial base. An exhibit could be planned in cooperation with the Connecticut Store and the Mattatuck Museum. The store already sells and displays goods that are manufactured in the state. The museum houses a number of permanent as well as temporary collections and it is now working on a more ambitious effort that is an outgrowth of its 20th Century Manufacturing Initiative. The new initiative would produce an interactive display on the success and diversity of the region's manufacturing base, and it could serve as a welcome and information center for are companies, residents, and visitors to the area. A collaboration of the store and the museum would be appropriate.

- ***Use the Council of Governments as a vehicle for keeping elected officials in the region focused on manufacturing.***

The elected officials in the region can play a very important role in retaining and strengthening the regional manufacturing base. Towns and municipalities are involved in the development of industrial land, they coordinate the permitting process, they set tax rates, and many of them are aggressively reaching out to companies and brokering resources. Currently, however, there is no setting in which these efforts are coordinated, and the support for manufacturing, while strong, has not been articulated in a clear fashion. To address this issue, the COG could be the setting in which the region's officials publicly acknowledge how vital manufacturing is to the regional economy. The COG can carry out this mission in several ways: invite manufacturers to periodic meetings for discussions of common concern to companies; take appropriate sections of this report that quantify the role that manufacturing plays in the region, publish the material and circulate it among the cities and towns in the region; co-sponsor events and programs that acknowledge the contribution of the region's industrial base (Cheshire could serve as a model with its Business Appreciation Day); use the Industrial Inventory section of this report to assess the region's and the individual towns' capacity to make affordable industrially-zoned land available; take decisive action on the transportation problems identified in this report.

3. DEVELOP AND EXPAND STATE-OF-THE-ART HIGH SKILLS TRAINING PROGRAMS.

A workforce brief entitled "Employer and Employee Roles in Workplace-Based Career Development: The Challenge of Change in the Workplace" pinpoints the dramatic changes that have taken place on the shop floor and the challenges that businesses and workers face. The Brief notes that:

"There is no longer any such thing as a stable, secure workplace. Technological change and the opening of markets to worldwide competition make it impossible for businesses to survive very long doing the same work in the same way. Businesses' efforts to compete have changed the nature of the labor market.... Factory production work, which used to require mostly low-skilled physical labor, has been changed so much by technology that employees often need Associate degree-level skills to operate production lines..... The challenge of workplace change may be unsettling to employers and employees. Workers who do not keep upgrading their skills will be left behind -- either in low-wage, dead-end jobs, or unemployed. Businesses that do not provide support and encouragement for employee skill upgrading will be outclassed by their more enlightened competitors."

The Valley's manufacturers and workers are not immune to these challenges. In order to continue to secure a strong industrial base, the region's employers and workers will have to take the high road/high skills approach to competitiveness, develop a long-term workforce strategy, create collaborations between management, unions, and workers, and put in place a top quality education and training delivery system.

Part of the challenge is being addressed. The training infrastructure in the region is quite strong and much has been done recently to help to build a skilled workforce. To further strengthen this infrastructure and address the other challenges of long-term workforce strategy, collaborations with employers and employees, and creating an integrated quality delivery training system, the following recommendations are proposed.

- ***Under the direction of the Manufacturers Leadership Group, and in collaboration with the existing network of training institutions, develop the Central Naugatuck Valley Blueprint for High Skills Training.***

This is not just an academic exercise. What emerges from this kind of critical undertaking should set the tone and a specific direction for maintaining a first-rate, skilled workforce for the region. Fortunately, many manufacturers already know how essential a skilled workforce is to the financial viability of a company. And, as noted previously, the partnerships that have been created between companies and training institutions demonstrates the commitment that is being made to building a quality workforce. What is missing, however, is a more comprehensive and articulated vision for the region's companies and workers, a detailed and long-term plan for making that vision a reality, and the involvement of union and worker representation.

The Blueprint should not be a lengthy document -- rather, it should be concise and accessible and provide public and private leaders as well as residents of the region with a good grounding in how a high skills workforce program will take shape. Elements could include a vision statement about the future of manufacturing and the manufacturing workforce, goals and objectives related to the vision, the importance of developing a three-tiered training system (vocational, adult entry-level, and workforce upgrading and retraining), a brief outline of the occupations and skills requirements for Valley manufacturing firms, current training programs, projections for future demand for workers, etc.

The Blueprint will help manufacturers, workers and training institutions plan for the future, and it should help residents and elected officials in the region better understand where the manufacturing workforce of the next five to ten years is heading.

- ***Update and quantify the demand for skilled labor over the next two to three years.***

The current training program directed at the screw machine industry was based, in part, upon a survey of 102 firms by the Connecticut Skilled Trades Coalition (revised 9/21/95). The survey projected that 383 new positions and replacements for retirement would be needed by companies in the next several years. The survey was key in bringing together the state and local organizations noted above and for securing the funds to operate the program. Several of the firms and training institutions interviewed for this project feel that a more comprehensive survey that includes broad representation from all key manufacturing sectors in the region is needed. The new survey would give a higher degree of confidence to firms and training organizations about the breadth and depth of the demand for skilled workers and it will lay the foundation for the Blueprint. Federal and state funding sources would also be eager to see such a survey.

Industry leadership will be essential in convincing firms in the region of the value of the survey. Industry leadership will also be key to designing a simple but effective survey instrument. In addition to industry leadership, a small working group of the region's and state's principal training institutions should be involved in developing the survey and possibly conducting it. On the broadest level, the survey should provide information on any given firm's existing occupational and skills breakdown, the number and nature of positions it hopes to fill within a one-to-three year timeframe, the training required for those positions, and the wage range for the positions.

The challenge, of course, for a survey like this is maximizing the response rate. Key to getting the highest return will be advance publicity about the survey, industry leadership in promoting and publicizing the survey, and the manpower needed to follow up with firms, and then tabulate the results. The more organized volunteers involved in the process, the smaller the costs of conducting the survey.

- ***While the survey and Blueprint are being worked on, take action in several different areas:***
- rebuild the relationship that once existed between Kaynor Technology and the region's manufacturing community and make the school a first-rate vocational technical institution -- the bond between industry and the school has suffered, but there is a very solid foundation to build upon;
- develop a strong marketing and outreach effort to publicize the state's Customized Job Training and Apprenticeship programs -- both programs are well-regarded by some companies within the region, but not enough firms know about them or the positive effects they have had on area companies; and
- make better use of the workforce upgrading and retraining capacity of institutions like the NVCTC and the IIET to keep existing workers skilled and abreast of changes in shop floor technology.

4. FURTHER PROMOTE MANUFACTURING MODERNIZATION.

The manufacturing environment throughout the world is changing at a very rapid pace. The competition for new and expanding markets is fierce and it means that firms that wish to compete in the marketplace have to continuously upgrade and improve their production, management, and workforce systems or they risk failure. The term "manufacturing modernization" is used frequently and somewhat loosely in the world of economic development. Mt. Auburn Associates and Brian Bosworth of RTS have developed a definition of what

modernization means from years of practical experience and from conducting an extensive review of literature on the subject. Our viewpoint on modernization is presented below:

- ***Modernization is a process of continually adopting and integrating advanced business practices in all areas of business operations.***

Modernization is a complex and multi-dimensional process. It does not occur from the adoption of a computer-based machine alone, nor does it occur from quick-fix engineering and management solutions. It reaches out beyond manufacturing process technology to embrace all areas of business operations, including human resources, marketing, finance, and other important factors. Seven critical areas of business operation have been identified in which modernization impacts on business practices. These seven areas are:

- ***Process Technology.*** It has become increasingly true that competitiveness in quality, cost, and service is difficult without employing sophisticated manufacturing technologies. Such technologies allow customization of product, lower labor costs, and shorter response time. Proven, off-the-shelf technologies are readily available, adaptable, and have demonstrated their value. They include design and engineering (e.g., CAD/CAE); materials and requirements planning; fabrication, machining, and assembly (e.g., NC/CNC, robots); materials handling and inventory management systems (e.g., guided vehicles); inspection and testing equipment (e.g., lasers); electronic communications, and control systems (e.g., LANs and programmable controllers).
- ***Advanced Management Practices and Techniques.*** Managing the complexity of interrelated and often simultaneous change across all areas of business operations requires using advanced management practices and techniques. Successful firms have adapted long-range strategic planning, total quality management systems, continuous flow/just-in-time, and other such advanced management practices.
- ***Market Research and Marketing.*** In the face of global markets that are more demanding and volatile today, firms must develop new skills in market research, analysis, and planning. They must define their core skills and become proactive about marketing. Historically, many small firms have been reactive about marketing and do not know how to find prospects and customers.
- ***Skills Enhancement.*** Managers and workers in the modernizing firm often need new occupational, technical, and problem-solving skills to effectively deploy advanced technology and flexible work organizations. However, smaller manufacturers often do not invest well in the skills of their workers. Many education and training systems are good at working with large firms, but not with smaller firms.

- ***Work Organization.*** High value production demands flexible enterprises that can respond quickly to customer requirements for quality, reliability, precision, and speed of delivery. Centralized and hierarchical work organizations are seen as retarding achievement of these objectives. Many modernizing firms are shifting quickly toward flexible or "high performance" work organizations. Typical attributes of these reorganized work systems are severely flattened management structures, employee work teams with significant autonomy, job rotation, and employee involvement in problem solving.
- ***Finance.*** Exploring new markets, acquiring new technologies, and investing in training requires money. The modernization process leads frequently to greater demand for debt or equity capital. Successful firms must have strong capital and cash flow management systems in place and be able to respond to the changing financial environment in which underwriting criteria have become more restrictive. Additionally, a strong system of financial planning and review is important to long-term economic viability. Firms need to pay increasing attention to how capital is managed and allocated within the operation.
- ***Inter-firm Cooperation.*** Many modernized firms have discovered that modernization requires new skills and new mechanisms for managing their relationships with other companies, including customers, suppliers, competitors, and other firms tightly linked in marketing and production clusters. Modernization studies have shown that firms that have relationships with other firms (e.g., supplier-OEM, partnerships, alliances) are more likely to adopt modern technologies. These relationships help facilitate learning about technology options, differences, and methods. Collaboration among small firms can also help achieve economies of scale in human resources development, technology, market research, sales, distribution, and service.
- ***Firms must manage and integrate change in each of these areas simultaneously if they are to survive and grow in the intensely competitive world economy today. And they must continuously make improvements.***

Modernization does not reach an end, a point at which a company can stop learning. Competitive firms continually seek to improve. Managing technology, workforce development, finance, and inter-firm cooperation requires concrete skills that firms need to have. Therefore, to be successful across these dimensions, the personnel involved, whether top management or production workers, need to be good learners. They need to know how to find information, how to rely on external resources (including other firms), and how to develop lessons from experience. The learning organization is one that consciously encourages its employees to learn and to pass on the results of that learning. It uses the results of that learning to assess its

objectives, values, and beliefs. And it seeks to learn how to effectively encourage learning within the firm.

- ***It is not easy for many businesses, especially small businesses, to modernize. They must overcome a variety of barriers that impede them.***

Many firms simply lack information to help them choose technologies or the information they get may be biased and untrustworthy if it comes from an impartial source, such as an equipment vendor. The lack of financial resources is often an impediment. It costs money not only to purchase technology but to train employees in how to use it. Sometimes, owners are resistant to change for a variety of reasons including lifestyle choices or business strategy. It may not make economic sense for a firm to buy new technology if the return on investment does not show a payoff. Helping businesses become good learners and enhance their competitiveness is a long-term process.

- ***Finally, it is important to note that many small firms have more success learning in informal than formal settings.***

Small firms tend to communicate in informal and concrete ways. They often do not like complex, formal, explicit information. They tend to prefer informal face-to-face contacts as a form of discourse. Thus, formal lectures, classes, and seminars do not tend to work well with these types of firms, whereas informal conversations and one-on-one meetings between parties create an environment in which more give and take can occur that allows trust to develop between parties.

Some of the larger manufacturing firms in the region have adopted modernization practices and principles, as have a number of smaller firms. As the results of the business survey and interviews with manufacturers in the region indicate, these firms have purchased computer-based production technologies, are committed to high performance workplaces, have secured ISO 9000 certification, and are undertaking innovative strategies for gaining new markets and customers. Nonetheless, there are many small- and medium-sized firms that either cannot afford to make substantial improvements or lack the expertise to do so. These firms need help.

The help, in large measure, is available. Connecticut has an impressive number of effective resources for manufacturing firms, and these resource organizations have provided assistance to firms in the Central Naugatuck Valley Region. They include the Naugatuck Valley Community-Technical College, the Connecticut Small Business Development Center (CT SBDC) in Waterbury, the Connecticut State Technology Extension Program (CONN/STEP), the Advanced Technology Center for Precision Manufacturing at UCONN, the Connecticut Business and Industry Association (CBIA), the Naugatuck Valley Research Deployment Program, Connecticut Innovations, Inc., the Manufacturing Applications Center (at IIET), the Flexible Manufacturing Networks Center (IIET), the Connecticut Procurement Technical Assistance Center (IIET), and the Technology Assistance Center (CONNTAC).

Each institution has targeted resources for strengthening the competitiveness of companies. The CT SBDC has conducted programs on the succession process for firms that are transferring ownership, it has helped a number of firms package and secure financing from private and public sources, and it offers a range of business-related and technical assistance services to area companies. The IIET helps companies through its Flexible Manufacturing Network Center, it provides engineering and technical assistance to firms through Manufacturing Applications Center, and its training programs enhance the skills of incumbent workers. CONN/STEP has a pool of 20 field engineers that provide problem-solving and engineering assistance to firms that includes a range of areas from plant layout to high-end technology issues.

The challenge is to stimulate higher levels of demand for the services of these resource organizations, to create a culture of modernization and continuous improvement, and to assist a critical mass of companies in the Central Naugatuck Valley region.

In this context, Mt. Auburn offers the following recommendation:

- ***Under the direction of the Manufacturers Leaders Group (see above) and with the assistance of the resource organizations noted above, develop a program and support system for the region's manufacturers in "modernization" and continuous improvement.***

The leadership has to come from the manufacturing community. That is, the motivation has to come from within in order for this initiative to be successful. Also, it will take time to create a culture of "modernization" (years rather than months) and the process should be undertaken slowly over time. The Manufacturing Leadership Group and the proposed industrial organizer should take principal responsibility for the initiative, with support from the region's chambers of commerce. The resource organizations will also have a major role to play. To help the modernization process, several programmatic items are proposed:

- ***A CEO forum*** to give senior and upper-level managers an opportunity to problem-solve and simply talk about the process of embracing modernization and continuous improvement. CEOs that have already adopted the process in the region, in Connecticut, and in New England could be presenters at the forum.
- ***Formation of a group of mentors*** from firms in the region who have been successful in modernization to serve as resources to companies that need help understanding the modernization process or who need convincing of its value. The mentors can provide very short-term advice and technical assistance and then broker the services of the resource organizations.
- ***Roundtable sessions*** on topics that relate directly to modernization and are consistent with the needs and interests of a significant number of firms in the region.

- ***Publication of a quarterly newsletter*** that will include: profiles of area companies and their successes in modernization, trends in manufacturing modernization, listings of "best manufacturing and modernization practices," and a calendar of relevant workshops and seminars (this newsletter could also be expanded to include other features of interest to companies in the region: market opportunities, descriptions of new public and private sector finance programs directed to manufacturers, succession opportunities, notices from firms that are interested in forming strategic alliances, etc.
- ***Production of an easily-accessible guide to resource organizations*** that could be published in print and electronically. The guide, however, needs to be carefully formatted and designed so that area companies can readily find the right resource. Brief examples of how each resource organization has successfully worked with a company could be included. Simple descriptions of each resource organization, without examples or an indication of how the organization can specifically help a company, would not be appropriate.

5. FURTHER PROMOTE INTER-FIRM ALLIANCES AND COLLABORATION.

The emergence of manufacturing network and inter-firm alliances has gained substantially in the U.S. in the last three to five years in scope and nature: supplier networks to OEMs, marketing collaborations, strategic alliances, cooperative purchasing networks, R&D collaborations, etc. Although these initiatives differ substantially in sophistication and effectiveness, they do share common goals. They attempt to:

- broaden the capacity of an individual firm, thereby enhancing the firm's capacity;
- provide access to new markets and market niches;
- enhance the competitiveness of firms;
- generate new learning opportunities; and
- develop support for state and federal resources.

In the Central Naugatuck Valley Region, there has been interest in inter-firm alliances and collaboration, and several of these have proven modestly successful. For example, firms within the screw machine industry developed a partnership around training (noted elsewhere), eyelet companies are now beginning a similar partnership, Connecticut Metals Components, Inc. is a collaboration among six metalworking companies in the Valley to develop markets abroad, the plastics industry is working cooperatively with the Naugatuck Valley Research Deployment Program on several different ventures, several firms are working with Visions to develop a higher profile for manufacturers among secondary school students, and the Flexible Manufacturing Networks Center at IJET has created seven networks and several of them have companies from Waterbury that are involved. Other examples exist among the different manufacturing-related associations that have a presence in the Valley (e.g., the Small Manufacturers Association, the Manufacturing Alliance of Connecticut, and the Connecticut Business and Industry Association).

All of these efforts point to a level of interest and activity that is quite impressive. The culture exists, therefore, for inter-firm alliances and cooperation -- companies in the Valley clearly see a value in collaboration. Discussions with manufacturers and other resource organizations indicate, however, that additional collaborative projects would be of value and support for these initiatives would make it possible for more firms in the Valley to participate. The opportunities for collaboration are extensive and they could provide Valley manufacturers with enhanced capacity, learning, and markets. They include:

- additional joint marketing ventures among a small group of firms similar to the one undertaken by the Connecticut Metals Components, Inc.;
- additional training programs that build upon the work of the screw machine initiative (several companies in the Torrington area have developed workforce upgrading and re-training programs);
- collaborative efforts among firms to attend trade shows that would be too expensive for one to two firms to attend on their own;
- joint R&D projects in which several firms approach a university to conduct research that would benefit the firms that participate (examples of this exist all over the country);
- participation in the FMNC's product development and procurement networks;

- cooperative quality training and certification that would help lower the costs of a program (an example of this effort is ISO 9000 certification);
- joint problem-solving initiatives in which firms with similar waste, environmental, or energy problems join together to work toward common solutions;
- supplier networks in which a group of subcontractors work together to sell products and/or services to an OEM or group of OEMs; and,
- cooperative ventures to develop web sites among clusters of firms.

A principal source of assistance to Valley firms interested in alliances and collaborative ventures is the FMNC at IIET. The Center has a track record and a history of putting networks together successfully over the last three to four years. As mentioned, the Center already has a number of networks established in Connecticut, and conversations with the Director of the Center indicate that there is interest in the Center to support cooperative efforts that emerge from the Valley. For collaborations that might be undertaken that fall outside of the Center's mission, there are several obstacles that need to be addressed and a strategy to overcome them. The barriers are:

- the lack of time that CEOs from small- and medium-sized firms have to devote to building alliances;
- the costs associated with building some alliances;
- the lack of experience among many small- and medium-sized firms in taking on collaborative initiatives; and
- the slow process of building trust among participating firms.

To address the barriers and to help Valley manufacturers capitalize on new opportunities, the following recommendation is proposed.

- ***Provide an environment and the support systems that encourage substantive inter-firm alliances and collaborations among Central Naugatuck Valley manufacturers.***

In order for this effort to succeed, there are a number of things that come into play.

- Regardless of the form that any alliance or collaboration takes, the effort should be industry-driven. That is, industry's needs and interests must define the nature and direction of an alliance or collaboration.

- A "go-slow" approach is critical. Given the barriers noted above, the process for developing even a relatively modest alliance or collaboration is difficult and it should be done with deliberation not speed. It will be time-consuming to find the right opportunities, to find interested parties, to bring firms together and to build a level of trust.
- The most effective method of getting other firms in the Valley to collaborate will be one that comes directly from manufacturers themselves. That is, other manufacturers that have had a successful experience in an alliance, a network, or a collaboration will spark other executives and managers to act. Inter-firm learning will generate the best results.
- With regard to the organizing process (identifying opportunities, firms, and resources), Mt. Auburn proposes that the industrial organizer be used to test out and explore potential alliances and collaborations -- he/she will be in the best position to know where and when an opportunity presents itself. Selected presentations by manufacturers and resource organizations involved in forming alliances and collaborations would then be appropriate.
- The development of some alliances and collaborations will clearly require the assistance of state or university resources. Other, smaller scale collaborations, like a joint marketing initiative, could possibly be handled by the industrial organizer, with guidance from the principals of the Connecticut Metals Components, Inc.
- There are several instances in the region and in the state where collaborations have taken place and the lead organization has resources that can help the Valley effort. The Flexible Manufacturing Network Center of the IIET is a very good resource that has considerable experience and success in organizing a number of networks and alliances in the state. The Center is also intending on making the Greater Waterbury area a priority this coming year. Second, the Connecticut Metals Components, Inc., as noted, has formed a joint marketing initiative -- the experience of the principals would be important to understand. Third, the Naugatuck Valley Research Deployment Program has had direct experience organizing the plastics industry in the Naugatuck Valley -- there have been a number of joint projects and programs that could serve as useful models for the Valley.