

**University of Massachusetts Amherst**

---

**From the Selected Works of John R. Mullin**

---

Winter 1987

# Mature Industrial Communities: The Realities of Reindustrialization

John R. Mullin, *University of Massachusetts - Amherst*  
Jeanne H. Armstrong



Available at: [https://works.bepress.com/john\\_mullin/20/](https://works.bepress.com/john_mullin/20/)

# Mature Industrial Communities:

# The Realities of Reindustrialization

Jeanne H. Armstrong and John R. Mullin

*This article analyzes the reindustrialization problems facing mature-industry communities in Massachusetts. The findings are based upon our planning consulting work and research projects involving forty cities and towns. The range of these communities includes those which have recovered, are on their way to recovery, and are stable; those which are declining; and those whose status is indeterminate. A variety of factors are reviewed, including unionization; work-force characteristics; the relationship between small and large plants; the characteristics of local companies; location; financing; the availability of land; and the role of local planning. Finally, we present recommendations concerning local action and possible state-policy initiatives.*

---

The purpose of this article is to explain the realities of planning for the maintenance, enhancement, and expansion of the industrial base of mature-industry cities and towns. Our conclusions are predicated on our work in forty mature-industry communities in Massachusetts, and our findings were derived from three types of studies. The first was applied planning consulting, which we used in cities and towns across the Commonwealth; in these communities we relied primarily on local data, interviews, and reports for our analysis and recommendations. The second was the formal application of a questionnaire (see Appendix B), which we gave to more than 150 owners of small businesses in six mature-industry communities; this questionnaire was utilized in both contractual and grant-funded work. The third was an examination of the reindustrialization efforts of several communities as part of ongoing academic research. This research is being undertaken with the intent of determining the effectiveness of locally stimulated efforts, and more complete results will be published at a later time. (The means by which each community was researched are noted in Appendix A.)

When we began our work, we did not intend to summarize the findings of the various studies and projects in a research report. For this reason, the findings do not flow from one neat, methodological package that can be statistically aggregated. In fact, even when we wrote formal survey instruments that were designed to assess entrepreneurial activity, our clients inevitably asked for revisions and the posing of questions tailored to local needs. Applying the old adage that the client is always right, we reluctantly complied! In short, we took the findings from all three types of studies

*John R. Mullin is associate professor of urban planning at the University of Massachusetts at Amherst. Jeanne H. Armstrong is president of Land Use, Inc., a planning consulting firm in Hadley, Massachusetts.*



and summarized them herein.

The communities listed in Appendix A all have differing characteristics and are experiencing various levels of industrial prosperity or problems. Some have completely recovered (for example, Maynard and Milford); some are stable (Northampton and Templeton); some are in the process of recovering (Chicopee and Lawrence); some are declining (Adams and North Adams); and some have an indeterminate future (Colrain and Monroe). What do we mean by these descriptions? A community that has completely recovered is one in which the mills, factories, and plants are in active use for industrial purposes; where unemployment is low; and where industrial activities appear to be relatively prosperous. A stable community is one that has a strong industrial base; where long-term industrial tenants remain prosperous; and where this industrial activity is still welcomed. A community that is in the process of recovering is marked by strong promotional activity that has met with some success, and is being visited by firms interested in locating therein. A community in decline has had little success in attracting new firms and is quite likely to experience further industrial decline. A community with an indeterminate future is one in which the industrial base no longer exists and in which the factors that once attracted industry to it are no longer operative.

In each case, we attempted to extract information concerning nine factors (determined by trial and error) which we felt were critical to the well-being of the community. These were as follows:

1. The role of unions. In general, we found that the more unionized the community, the more apt it was to be in decline.
2. The characteristics of the work force. Not surprisingly, the less educated, less skilled, older, and more unionized workers were more apt to be located in a community beset by decline than those who were more educated, more skilled, younger, and less apt to work in unionized firms.
3. The relationship between large and small plants. We found that small is not beautiful—in a vacuum. Rather, there is a strong relationship between the success of small plants and large factories. A layoff of workers at United Technologies, for example, sends ripples quickly through many communities and adversely impacts small feeder firms.
4. The characteristics of local companies. Our analysis clearly showed that the success of these companies depends upon their skills with respect to management, obtaining financing, marketing, and creating innovative products.
5. Location. The oft-quoted statement that the three key characteristics determining site selection are location, location, and location is only partly true. Clearly, the success of the Route 495 communities stems from their proximity to the highway. Yet other communities have experienced great success despite their being located off the beaten path.
6. Education and training. While these factors are important in growth



areas, they are problematic in others. How can education and training be provided in advance for a company that has not yet located in a given community? There is no easy answer.

7. The role of banks and venture capital. In some cases, banks have been aggressive in their efforts to stimulate industrial growth, while in others they have tended to invest outside the region. It is certain, however, that starter industries tend not to be supported by local banks.
8. The availability of land. If a town had land that was (a) available, (b) appropriately zoned, (c) served by an infrastructure, (d) close to highways, (e) free from environmental problems, and (f) relatively inexpensive, then, over time, it tended to attract new industry—albeit at a slower pace than most communities desired, and rarely with the boost to the local economic base that was expected.
9. The notion of planning itself. Professionalism, long-range approaches, governmental assistance, and organization were found to be very important. The community that was carefully planned, organized, and professional tended to have a greater degree of recovery than those with weak, hit-or-miss approaches.

---

## Overview

Over the past decade, New England in general and Massachusetts in particular have benefited from a dramatic shift in their economic base. Slowly but steadily, the region has shed its traditional mature-industry firms and replaced them with the glittering growth firms associated largely with high technology.<sup>1</sup> In Massachusetts, the change has been so dramatic that the Commonwealth has had the lowest unemployment rate among the nation's ten largest industrial states for the past three years. During calendar year 1984, the state saw more jobs created (140,000) in any one year since 1942. This is in striking contrast to circumstances of ten years ago, when the unemployment rate in Massachusetts was the highest in the nation and the state was functionally bankrupt. The changes in the past decade have been phenomenal indeed.<sup>2</sup>

What has brought about these changes? There are many causes, and no one simple determinant stands out. Certainly, a number of factors have been critical: the rise of the computer industry; increased technological innovation; the presence of risk capital; the availability of a skilled labor force; entrepreneurship; educational achievement; and supportive state policies. These collectively have formed a cauldron from which a transformation appears to have emerged.<sup>3</sup>

Once we strip away the agglomerating effects of the state data, however, we can see that the reindustrialization that has occurred has been very uneven. For example, the overwhelming number of growth-related jobs are located along Routes 128 and 495; there are whole regions of the state—that is, the Northern Tier along Route 2 (the Northern Tier refers to the set of communities that lie along the Route 2/Mohawk Trail corridor); southeastern Massachusetts; and the Blackstone Valley—which have benefited very little. The state has recognized this imbalance, has formed a mature-industries council to study the problem, and is now taking steps to help communities adjust



(one such effort is the Cooperative Regional Industrial Laboratory). The fact remains that some regions of the Commonwealth are still dependent upon faltering mature industries.<sup>4</sup>

What are the characteristics of the mature-industry towns? From our research, it appears that in contrast to other areas of the state, the workers in these communities are older, more unionized, more ethnic, less educated, less skilled, and less able or willing to move, and that they are more predominantly Catholic and have larger families. The work ethic is powerful, and so are family, church, and roots. Voting with one's feet—by moving to the Sun Belt, for example—simply is not considered an option. Most of these towns are small (averaging about ten thousand people); were once affluent, or at least healthy; and are located on the fringes of metropolitan areas. Their surviving companies are a mix of multinationals; large, privately owned firms; and a plethora of contract shops that depend on the largesse of the large firms. Management and workers in these communities tend not to get along. If the preceding characterization creates an image of communities that have stood fast in time, then the description is an accurate one. There are more than seventy communities across Massachusetts which fit this profile. It is within this type of community that we focused most of our work.

---

### Summary of Key Initial Findings

What follows is a summary of the major points that must be faced to deal with the problems of mature-industry communities in Massachusetts.<sup>5</sup>

1. *The union label is the "kiss of death."* Any small town that has the image of being pro-union will not be considered as a prime location alternative by an expanding or relocating company. If a town has experienced recent strike actions, particularly over work rules, the likelihood of a company moving there is lessened even further. Virtually none of the growth-oriented companies are union, and there is a strong desire to keep things that way.<sup>6</sup>

What are the implications of this? There are several. First, communities marked as unlikely candidates by expanding or relocating companies are less likely to recover quickly. Second, communities will have to promote the positive side of their union work forces (that is, hard work, loyalty, organizational abilities). Third, the social structure in the community will change. No longer will the shop steward or the negotiating team have favored status, and no longer will the union hall serve as the nerve center of the community. In summary, we have found that unions in these communities are declining in power and influence, and we saw no evidence of their resurgence in any of the towns that we examined.

2. *The small town cannot hold on to the past.* In town after town, we have seen the collapse of textile, shoe, furniture, and machine tool plants. In each case, there is the inevitable meeting in the union hall, with discussions about "local purchase," "worker owned," or finding a new owner for the business. The workers get fired up; organize; obtain assistance from the Economic Development Agency (EDA), the Small Business Administration (SBA), and the state; and begin to operate. Inevitably, the work force shrinks, wages fall, benefits are cut, layoffs become frequent, and requests for tax abatement increase. This cycle can repeat itself for years.<sup>7</sup> And as it does, the young, the educated, and the ambitious leave.<sup>8</sup> The net result is that the longer a community holds



on to the past, the longer it takes to revive. In short, employment in textiles, shoes, and heavy manufacturing will not be returning to our region.<sup>9</sup> Also, while we all like to hear about the success stories, such as Weirton, West Virginia, the fact remains that local buy-outs and worker-owned companies are beset with many of the same problems that confronted the former management structure.<sup>10</sup> Competition from Singapore or Brazil, where workers earn a dollar an hour, will continue to be a problem even if workers cut their wages from \$12.00 to \$6.00 an hour.<sup>11</sup>

We do see some changes occurring, however. For example, a recently completed report on the future of the Northern Tier called for increased attention to the mating of the furniture trades in greater Gardner with high-technology applications, the premise being that high technology can make these firms more competitive.<sup>12</sup> Our own work in Leominster, which focused on the future of the city's plastics industry, calls for a formal relationship between the University of Massachusetts Polymer Center, the University of Lowell Applied Plastics Center, and local plastics manufacturers.<sup>13</sup> Again, the intent is to increase the viability of mature industries through the use of high technology.

3. *The mature-industry town will increasingly become a two-tiered community.* The real wage level of our mature-industry towns is shrinking. In fact, the laid-off former union worker, once he finds work again (in our research area, this worker is rarely a she), earns approximately one-half to two-thirds of the union scale. As the blue-collar middle-income group shrinks and that worker slips to lower-middle-income status, the entire community in which he resides suffers a loss of expendable income.<sup>14</sup> Also, the psychological and social split between blue collar and white collar tends to become worse. This trend toward a greater discrepancy between the two groups of wage earners is exacerbated by the surge in the service sector, which has created some highly paid professional positions along with many jobs that pay much less.

The only saving grace in this shift is that spouses have often returned to work to make up the difference in lost pay. Thus, in terms of the income levels of the traditional family, the loss in pay has often been softened. However, several of the bankers who were interviewed as part of this research commented on the ambivalent state of these two-income families. They noted that yes, these families can qualify for a mortgage or a loan. But they also noted that almost invariably one of the jobs is in a weak firm, or the wife is of child-bearing age (and firms in which the wives work provide little in terms of maternity leave or medical assistance). What will happen in these families if a pregnancy occurs or if the economy at large weakens?

4. *Most displaced mature-industry workers—at least the younger ones—do find some kind of job.* The unemployment figures do not demonstrate that towns where mature industries exist are dramatically better or worse off than communities where high technology and service firms predominate. At the same time, these figures do not reflect the early retirees and the long-term unemployed who have given up and dropped out. Generally speaking, most displaced mature-industry workers can find a job with lower pay and benefits, less dignity, less stature, and less security.<sup>15</sup>

We also found that workers are traveling greater distances to obtain work. This is a function of better roads (such as Route 146 through the Blackstone Valley), cheaper fuel costs, and the possibility of finding a job within reasonable commuting range. For example, although Athol's economic recovery has been slow, its unemployment has declined dramatically as firms in Leominster—which has a booming economy and



which is located approximately twenty miles to the east—have been providing subsidized buses for commuting back and forth to Athol.<sup>16</sup>

5. *Mature-industry communities are often Dickensian.* Firms wishing to have an image that evokes the Golden Triangle, the Austin Center, or Silicon Valley do not locate in Building 26 of the former American Woolen Company or on the eighth floor of the Uniroyal building. Sites of this kind are often too big, are not laid out for current production methods, and are too expensive to bring up to code. Frequently, they are white elephants.<sup>17</sup>

Mature-industry communities face the problem of maintaining their facilities in a habitable condition. We noted that mill owners who continue to maintain their properties, despite high vacancy rates, are more likely to find a reuse for them. Owners who shut off the heat, disconnect the sprinklers, and fail to mothball their properties find that within a short time, all they have left are piles of brick. We don't know what will happen to these structures in the future, but we do know that the new tax law will remove the advantages of holding on to properties that are poor investments. At the same time, the law may hasten demolition before new investors can be found. The issue will be particularly critical in such communities as North Adams (the Sprague Works), Adams (the Arnold Print Works), Ludlow (the Ludlow Mill), Colrain (the Kendall Mill), and Ware (the Ware Millyard). These structures are all vacant or underutilized and are critical to their communities' future.<sup>18</sup>

6. *Local banks rarely can or do take risks.* This is a major problem for mature-industry communities. Many banks tend to invest outside their own community, favoring instead more lucrative investments, for example, second houses on Cape Cod. Many are also increasingly hampered by their status as branch banks: major decisions are now made in Boston. The result is that local banks are usually not risk takers and are more apt to err on the side of caution than to be bullish with respect to young entrepreneurs.<sup>19</sup>

On the other hand, some local bankers relate a contrasting view. In regions where the population has declined and the local economy is still on a downward slide, bank presidents will report in closed session that there are now too many banks per capita. They maintain that there is capital available and that they are competing to invest. The problem is the depressing economic malaise, which results in no good ideas and no sound entrepreneurial ventures to invest in.<sup>20</sup> Local bankers also point out the reluctance on the part of entrepreneurs to prepare business plans that have sufficient depth to be meaningful. They regularly refer to the figures on starter company failures, noting that the stronger the plan, the more successful the company is likely to be. Our research has consistently found that the owners of young, small firms lack the critical skills necessary to obtain financing. Using "mom's mattress money" seems to be a far easier solution than working with the local banker.

7. *Mature-industry towns often suffer from paternalism.* In one of the communities we studied, the town fathers customarily refused to pass any budget-approval measures until they had first checked the plan with the mill owner. In another community, the mill owner (of a high-technology plant at that!) had for years blocked any company from coming into the region for fear of labor competition leading to raised wage rates. Now this owner has retired, and his son is moving the plant and twelve hundred jobs out of the region.<sup>21</sup>



8. *The aid that has been provided by federal and state government is too little, too late.* The SBA, EDA, and Trade Adjustment Act grants and emergency relief funds are well meaning and often helpful, as are state aid programs. Unfortunately, the funds have been too long in coming, and they are too limited. In the communities we examined, few faltering companies have been kept afloat—even after obtaining help from these sources. The Chrysler and Lockheed cases may be glamorous big wins, but for the 250-person paper factory, for example, the odds against such a favorable outcome are very great.<sup>22</sup> Even the much-praised efforts of the Dukakis administration are not as fruitful as they would first appear to be. Yes, the efforts can succeed, and yes, the state has benefited. However, it is important to note that the most distressed areas of the state have not been turned around as a direct result of public help. Perhaps what this signifies, more than anything else, is that there are limits to government, that administrative policies and programs can only establish a foundation for action, and that only when an industry is interested in a community will government aid be helpful. Bluntly stated, no matter what the state government does, the decision to locate in a community is inherently outside the public realm.

9. *More mature industries will close over the next decade than did during the last.* We base this prediction on several factors: international competition will increase; current plants and equipment are becoming increasingly outmoded; many plants are industrial polluters; and there are locational disadvantages.<sup>23</sup> Recent data released by the U.S. Bureau of Labor Statistics show that manufacturing of nondefense products in Massachusetts is declining at a rapid rate.<sup>24</sup> Will this trend change? There are some indications that a strong manufacturing base will continue to exist in the state. However, it will be dramatically smaller, less unionized, more technologically advanced, and less labor intensive, and its products will be “weight light and value heavy.”<sup>25</sup> The image of hordes of blue-collar workers leaving the Foster Grant, Sprague, Union Butterfield, Uniroyal, and Greenfield Tap and Die factories after a day’s work still exists in many of our cities and towns. It is an image, however, that will be altered to reflect the new industrial workplace.

10. *Industrial planning is virtually nonexistent at both the regional and local levels.* Where industrial planning does exist, it is of a chamber of commerce genre and is not based upon any needs assessment, understanding of local conditions, or evaluation of what the market will bear. We found that where so-called industrial planning existed, it was actually industrial promotion; that is, it was oriented toward enticing the new firm into the community, while virtually ignoring the needs of existing firms.<sup>26</sup>

---

## Overriding Conclusions

The mature-industry town, by demographics, by educational perspective, by spirit, by age profile, and by physical facilities, is a special breed—one that needs to be carefully nurtured if it is to survive. What is required to ensure its survival? Having pondered this question in both our research and applied planning studies, we arrived at the following major conclusions.

1. *There is an urgent need for professionalism among local industrial planners.* The great majority of mature-industry communities in Massachusetts are small- to medium-



sized New England mill towns, and Massachusetts is still the land of the citizen volunteer official. Thus, in town after town, the day-to-day management and administration, as well as long-range planning functions, are left to boards of selectmen, planning boards, conservation commissions, and other citizen volunteers who meet on Tuesday nights. Zoning ordinances, budgets, long-range investing in capital improvements, all must be approved at the town meeting.

In regard to planning, the situation is only slightly better in the larger communities, where there is a mayor and city council or similar form of government. The aftermath of the Proposition 2½ tax cap featured drastic cutbacks in personnel in many towns, and the planning staff were among the first to go.<sup>27</sup> This situation is exemplified by the status of infrastructure planning in the small cities and towns of Massachusetts. Even those few communities which on the eve of Proposition 2½ had carefully formulated capital improvement plans and schedules for improvement and replacement have found, in the ensuing five years, that they have had to shelve those plans in light of reduced annual budgets, limited staffing, and deteriorated equipment.<sup>28</sup> Other communities have balanced their budgets through the drastic reduction and reorganization of departments. Across small-town Massachusetts, there is a new category of town official: the DPW head who woke up one morning to find himself in charge of cemeteries, water systems, public buildings, sewers, and—because Massachusetts law requires a tree warden—trees. When researchers come to town to study local planning, it is this person to whom they are referred for information, so apparently he is also in charge of certain aspects of planning!<sup>29</sup>

In short, in most Massachusetts mature-industry communities, the responsibility for critical aspects of planning falls to officials who are not trained in planning. They are dedicated, hardworking, and community-minded, but lack the expertise required to guide the future form of community development.

In light of the unquestionable need to do something about the local economic situation, private-sector leaders are in many cases trying to fill the void. However, the members of a local chamber of commerce are no more likely to have had occasion to master the tools of industrial development than is the harassed, overworked official. There is an emerging potential for public/private collaborative economic-development efforts, and local officials and business leaders will be the key players in bringing about the implementation of long-range plans. But there is a crying need for professional planning services to crystallize objectives, lay out options for action, and help map out specific implementation steps. Indeed, one of the first questions that professional planners must help communities address is whether local economic development is to include reindustrialization.<sup>30</sup> In a town where the bulk of the work force is trained for industrial production but the mills have closed down, the attitude toward industry is often categorized as a love/hate relationship.

2. *Mature-industry communities must heed the admonition to "know thyself."* Local communities are seriously hampered by inadequate information about their town's resources, problems, and prospects. Lack of data is not the problem: local decision makers are engulfed in torrents of aggregated data and analyses of macro trends. Undigestible piles of generalized information and printed materials are available from uncounted agencies and programs.<sup>31</sup> Absent is information that is specific to the community as well as the analysis of what the available data imply for short- and long-term planning.<sup>32</sup>

Thanks to the U.S. Census, town census, and street listings, demographic data are



available; what is missing is the interpretation of these data. However, hard data on existing firms and the current and future work force are another matter. For example, statistics from the Department of Employment Security (DES) have severe limitations. They do not reflect self-employed people or workers who have exhausted their benefits, have given up searching for a job, and have dropped out of the full-time employment market. Moreover, for many small communities, disaggregated DES data are not released, because the number of firms reflected is so small that to disaggregate the data is to violate confidentiality. Local sources of information, both formal and informal, often do not even know the identity of firms that may offer potential for the future, that is, the young enterprises located in garages, basements, and back sections of buildings which are likely to be in violation of both building codes and zoning regulations. Finally, crucial information is also lacking with respect to better-known, established firms; despite all the theoretical and policy debates, there still is no practical early-warning system to alert local and state officials to upcoming cutbacks, closures, or departures of the mature firms that are the backbone of the local economy.<sup>33</sup>

What about the members of the local work force? What are their skills and attitudes? Do they have the willingness to train, and other attributes upon which reindustrialization strategies can be based? We know that they are loyal to and rooted in the community. Individuals who would leave in search of greener pastures already have.<sup>34</sup> The most troublesome questions and difficult issues confronting reindustrialization planners are those which pertain to the wrenching present and uncertain future faced by today's industrial work force, which may in fact be yesterday's industrial work force. The decline of the worker's union, the recognition that the worker's skills are no longer required, the fact that many of these once-proud individuals are now dependent on government, and the lack of knowledge concerning entrepreneurship are factors that can indeed lead to extensive stress.<sup>35</sup> There are no pat answers, but certainly generating as much "hard data" as possible about a community's work force and then correlating those data with more subjective considerations, such as perceptions of the future and commitment to the community, will be an important first step toward documenting the current and future human resources that will infuse life into a reindustrialization program.

Most industrial communities either have or have access to general information regarding their physical resources and facilities. For example, with a little time and effort, one can assemble a listing of available industrial buildings and developable land; the Soil Conservation Service and Regional Planning Commissions have at least some base data on soils, water, and agricultural land; and the extent of sewer and water services is known, although not necessarily mapped. The crucial missing links lie in the interpretation of that information and what it implies for reindustrialization. The state of local infrastructure planning is a good case in point. The cost of providing utilities for future industrial activity is very difficult to assess in a town where the water and sewer monitoring and maintenance program consists of fixing the pipe when it bursts. When there are 100 miles of road to maintain but a budget for patching only 5 of those miles in a given year, the DPW does not maintain and update a survey of road-surface condition.<sup>36</sup>

Local and regional planning must also address the question of how reindustrialization relates to the natural resource base. Traditionally, the state's mature-industry towns accepted the tenants of their mills with little regard for the companies' impact on the environment. This is no longer possible. Federal and state regulations and controls



concerning wetlands, flood areas, waste treatment, water sources, and particulates placed in the atmosphere, to name a few areas of concern, now help to ensure that the environmental quality of such historical mill rivers as the Nashua, Blackstone, Hoosic, Assabet, and Merrimack is being restored. As well, the physical image of the state's towns is critically important. Massachusetts farms, town commons, and mill complexes nestled in valleys are all quality-of-life resources that have kept oldtimers in the state and have enticed newcomers to reside here. The loss of these resources as the price for job generation will hurt all Massachusetts residents in the long term. In brief, reindustrialization cannot take place at the expense of natural resources. The two need not be mutually exclusive, but reindustrialization planners must generate the necessary specific local data; must bring to bear the most effective planning tools; and then must convince the local population that reindustrialization will not destroy natural resources, that it will augment, not detract from, their quality of life.

Industrial communities must take a fresh look at the local capacity to finance reindustrialization. We see strong indications that both public- and private-sector ability to underwrite capitalization may be greater than perceived. Across Massachusetts, the bonding capacity of local towns far exceeds their bonded indebtedness, and many towns have not even bothered to obtain a bond rating.<sup>37</sup> Of course, the taxpayers' revolt is one significant reason for this state of affairs, but it is also true that many small towns are closed out of the bond market because they lack the technical expertise necessary to process a bond. For example, a town in western Massachusetts was considering a \$500,000 bond but was concerned about the associated legal and other fees it would have to pay. These costs would have amounted to \$10,000, a relatively minor sum but one that would have been very difficult to pass at the town meeting in light of current budgetary constraints. There are also untapped private local sources of industrial financing. Frequently, local banks have a poor reputation in regard to making loans to new businesses; but close questioning often reveals that this perception has resulted in the entrepreneur's not preparing a strong loan application or even in his or her not going to the bank at all. The actual and potential roles of local private capital must be examined further, but the expertise and support of the heads of local lending institutions must definitely be tapped during the formative stages of reindustrialization planning.<sup>38</sup>

Clearly, planning for reindustrialization requires gathering and analyzing data that pertain to the assets and liabilities of such categories as land, labor, location, capital, services, and physical resources. At the same time, there is an overarching need for a reassertion, or perhaps redefinition, of the community's character. What are the inherent and fundamental characteristics of the community which will be the essential components of its future? For many former mill towns, the issue of community character raises such very real questions as, Do we want to retain a viable local industrial and commercial base, or do we want to become a bedroom community? Towns located farther from metropolitan centers must ask, Do we want to pin our hopes upon becoming a tourist destination and center for factory outlets?

3. *There is a need for balanced growth.* A number of regional trends are altering the physical setting and social fabric of New England industrial communities. Commuting patterns, improved transportation networks, the rise of the service sector, and the exploding demand for housing are all enveloping former freestanding mill towns. The same local citizen officials described earlier are confronted by such growth manage-



ment issues as retention of farmland, conservation of open space, provision of affordable housing, pollution cleanup, and the job of relieving the strain on public utilities and services. Reindustrialization planning must take place within this overall context of growth management and must itself work to maintain a balance within the industrial sector.

A spectrum of industrial buildings and developable land must be maintained. This can be difficult when market forces are pressing to convert old mills into boutiques and condominiums.<sup>39</sup> "Banking" an old mill complex can be expensive; the heating bill required to prevent deterioration can be in the hundreds of thousands of dollars for one winter. Many New England communities have a limited number of land parcels that have good access and are sizable, relatively flat, well drained, and served by sewer and water; it is a struggle to stave off commercial or residential development and to wait for suitable industrial development. This is a prime example of how successful reindustrialization will depend upon the forging of a consensus that industry is an essential component of the community's character—one that the voting public wants to foster—and that reindustrialization is a crucial element in the future for which the community is striving. Conserving the region's industrial stock will be difficult and expensive, but also vital to a reindustrialization effort. Mature firms, stabilizing firms, growing firms, and firms aborning; research and development, production, management, and warehousing—all are essential to a vibrant industrial economy, and each has different facilities requirements.<sup>40</sup>

A multifaceted approach is also required with respect to human resources. Retraining and job-creation programs must assist the displaced older worker at the same time that opportunities are created for the community's young people. The out-migration of the younger generation is one of the most debilitating aspects of a depressed local economy. An influx of innovation from outside the community must be welcomed, but care must be taken that the efforts of local entrepreneurs are identified and fostered, and that the existing work force is a beneficiary of new employment opportunities. Although in practice it may be difficult to achieve, in theory one can assert that the range of new jobs must include those which call upon established skills and those which provide skills for new growth sectors; jobs that pay well and jobs that provide entry-level access; jobs that build for the future and jobs that at least hold body and soul together through the stressful present. No easy task!<sup>41</sup>

4. *Reindustrialization must start by building upon resources the community already has.* Although the wistful hope still lingers that a large (but of course nonpolluting) firm will move into town and initiate a new era, most local leaders have come to understand the futility of wasting limited resources on the vain, zero-sum game of smokestack chasing.<sup>42</sup> Industrial raiding parties in which chamber of commerce commandos march off to Tokyo intending to capture a new Nikon or Sony factory rarely succeed. Nor does it pay to go to North Carolina, Arkansas, or Texas in an attempt to woo back old plants. In fact, as early as the 1970s, researchers recognized that spinoffs and in-place expansion resulted in a far greater increase in jobs than did "cross-state" or "into-state" expansions.<sup>43</sup> In addition, there is growing awareness that some kinds of development create more problems than they solve. Our research and professional projects validate the belief that strengthening and fostering growth among existing local firms not only offers a significant likelihood of benefit, but also is likely to result in the expansion of industrial activities that are compatible with the character and resources



of the host community. A first step is to seek out the owners and chief executive officers (CEOs) of local firms and work with them to identify and alleviate problems that dampen their prospects for prosperity. Related analysis can disclose opportunities for the local community to meet supply and service needs that are currently filled from outside.

A second step is to identify and interview local entrepreneurs and potential entrepreneurs who would like to start new companies. Our research shows that people who go into business for themselves set up shop close to home.<sup>44</sup> Thus, identifying and removing obstacles to business start-ups will bear fruit locally.

Once the local owners and would-be owners of businesses have reported their experiences and needs, the community must then mobilize its support system for economic development. Projects like the Governor's Task Force on Economic Development for the Northern Berkshires underscore the fact that no matter how dismal a community's prospects may appear, there are resources to call upon. Educational and training support can come from public and private educational institutions: kindergarten through high school, higher education, technical training, and adult education can separately and together provide basic educational skills, preparation for the world of work, retraining, specialization, and technical skills. Educational institutions are also major employers and purchasers, and educators can lead the way toward correcting negative, self-defeating attitudes. The local banking community can play a major role in teaching local business people how to access traditional loan sources; in constituting innovative forms of financing, such as loan and venture capital pools; and in tapping into the numerous state programs for financing reindustrialization. The human-services system and municipal policies and procedures can be streamlined and made more responsive. "One-stop shopping" is a useful objective, whether for a laid-off worker searching for unemployment-related benefits and retraining programs or for the potential owner of a new business who is looking for land, capital, zoning information, and building permits. Once local strengths have been spotted, one can work to build on them. Once impediments to growth have been identified, one can work to remove them.

In towns that have bottomed out and are on their way back up, it may be sufficient to foster local strengths and alleviate local obstacles to growth. In towns that are still declining, however, this strategy will not suffice. Industrial activity, especially new industrial activity, results when individual people become entrepreneurs and assume the risks involved in investing in or starting a new business, or moving, expanding, or otherwise altering an existing business. Communities that are "on the ropes" are shrouded in a self-defeating and deadening malaise. In these communities, reindustrialization efforts will have to reach individuals and motivate them to take the risks, both personal and financial, involved in change. The prospects of the community must be promoted to local citizens in order to spark the personal risk taking and collaborative efforts essential to reindustrialization. Slogans like "Ware: The Town That Can't Be Licked" and projects like the Heritage Parks in Lynn, Gardner, Holyoke, and North Adams are examples of internal promotion. To be effective, such promotion must grow out of a clearly articulated consensus of a community's character and special attributes. The promotion effort must also be tied to a support system that fans promising sparks of new activity into life.

*5. Successful local promotion and mobilization can be followed with successful*



*marketing to the outside.* A locally generated resurgence of industrial activity will be the most effective marketing tool. The same mobilization of support systems which fosters the birth and growth of local firms will attract firms from outside the community. In fact, without this support system in place, external marketing tends to be futile, owing to ineffective or nonexistent follow-up of marketing leads.

Marketing theory lays great stress on the importance of "positioning," that is, on the forceful assertion of a special niche.<sup>45</sup> A ringing, reality-based statement of an industrial community's essential character and special attributes stakes out its market position. An articulate definition of the support systems and the quality of life offered by the community will attract the desired decision maker, whether he or she is a single entrepreneur or sits on an expanding firm's board of directors.

6. *Once the reindustrialization plan has been formulated, state and federal sources of assistance can be tapped.* When assistance is sought before a solid strategy has been formulated, the result is grantsmanship, not planning. In practice, a small town's attempt to dip into the alphabet soup of state programs by shaping its request in terms of what it understands the selection criteria to be produces a hastily conceived, noncompetitive proposal that may do more harm than good. Even a "simple" application consumes a large proportion of the volunteer and staff time that is in such short supply. Grant hunting, at best, tends to result in sporadic, uncoordinated expenditures of funds and effort. At the local level, there is also a suspicion—not altogether unfounded—that once a state grant has been awarded, a community's problems are just beginning, owing to the administrative requirements of the grant. The outcome may be that communities, especially in small towns, just stop applying for grants. In some cases, industrial-financing monies earmarked for small towns have not been spent because so few communities applied for them!

State and federal assistance certainly can supply a vital infusion of support at key points in the reindustrialization process. However, requests for assistance are increasingly being evaluated by the administering agency according to whether or not the proposed project supports a coherent overall plan. From the local point of view, a clear plan of action is necessary for shaping outside programs to fit local needs and for making competition for government money worth the effort.

---

## Summary

From a bottom-up perspective, there is obvious cause for concern regarding the future of mature industries in Massachusetts. They will continue to decline, and many of the towns in which they are housed will suffer. Perhaps most important, there is little that the mature-industry town, by itself, can do to help slow the decline. State government, on the other hand, can assist in several ways with future industrial development.

First, it can help communities maintain and enhance their infrastructure systems. The problems that currently exist are well beyond the abilities of most mature-industry communities to resolve. Given the collapse and/or cutback of most federal infrastructure grants, expansion has slowed to a virtual halt. If the state is to help revive these communities, the basic assets needed to attract new industry must be in place. At present, they are not, and they are increasingly less likely to be unless state aid is provided. In short, an infrastructure bank is critical.<sup>46</sup>

Second, there is a need for speculative investments in mature-industry communities.



For example, firms that are thinking of locating in North Adams view the lack of a limited access north-south highway as a major liability. And yet state policy dictates that existing, not potential, transportation demand determines whether highway improvements are made. Thus, there is a catch 22: North Adams needs an improved highway if it is to attract industry, but state policy dictates the city must attract industry before a highway is built. Providing funds in anticipation of growth could benefit these communities.

Another example centers upon mothballing. Historically, this term applied to the process used by the navy to preserve its ships during long periods of inactivity. In this case, it applies to the protection of old buildings. Too often, a mill owner, once a major tenant leaves, will cut back on heat, sprinkler operations, maintenance, and insurance. As a result, within a short time these facilities begin to decay, often to the point where they are unusable. Clearly, the preservation of these structures is in the state's best interest. A policy of financial assistance to the owners of large vacant structures for the purposes of maintenance would enable these structures to be better used at a later time. In short, such a policy would buy time for the communities while ensuring that one of their major economic assets had at least the potential to recover.

Third, a stronger relationship is needed between the state and growth firms with respect to the training needs of technical workers. It is ironic, as Lester Thurow has noted, that "alone among industrialized nations the United States does not have a system of skill training for the non-college bound."<sup>47</sup> What is meaningful training? Simply stated, it is the provision of skill development for the non-college-bound young worker and of retraining for the displaced worker to meet the needs of growth industries. Massachusetts has made definite progress in meeting this need. However, to date, the efforts have been reactive (usually due to plant closings) or too small to have a major impact.

Fourth, there is a need for pinpointed regional strategies. Massachusetts is a very small state. At the same time, it has several distinct economic regions. For example, the economic problems of the northern Berkshires, the Northern Tier, and the Blackstone region are considerably different from those of Greater Boston and Cape Cod. Until there are specially articulated programs to assist in the reindustrialization of these unique areas, little change will result. (A note of caution is in order here: one should not use an apparently low unemployment rate as a figure of relative prosperity. Workers in these regions are finding jobs by commuting to growth areas. The fact remains, however, that these once-prosperous regions are still shedding jobs.) These programs should emphasize special financial incentives for land assemblage and building preservation and for companies desiring to locate in these areas, as well as the creation of the aforementioned speculative approaches and retraining programs.

Fifth, increased state assistance is needed to mate mature industries with high technology. The aforementioned proposals designed to assist the furniture industry in Gardner and the plastics industry in Leominster could be applied, for example, to our paper makers and tool and die manufacturers. These efforts should not be viewed as "retrograde operations." Rather, the perspective should be that we have skilled and creative workers who, through the application of high technology, could become gainfully employed in firms that could compete in a world market.

Finally, the state must recognize that change is inevitable and that its industrial base will constantly shift. Our grandparents grew up with the idea that there would always be jobs in shipbuilding, shoe making, textiles, and paper manufacturing. Our parents



grew up thinking that our electronics and plastics firms would provide a lifetime employment base. Our brothers and sisters are now looking for long-term security in high-technology firms. The fact is that we constantly shed jobs, and, if anything, the pace of change will increase. What this points to is the need to recognize that company closings, job flight, and job displacement will be occurrences that are part of a world market system. Propping up a machine shop with a typical \$11.00 per hour worker who competes with a Pacific Rim worker earning \$1.00 per hour makes no sense. We need to strip away our perception of permanence with respect to our large industries. They will leave, not out of spite, but because of economic forces. And they should. We can already note, for example, that computer-related high-technology employment is no longer growing in the state, and, further, that companies located in Massachusetts are employing fewer and fewer manufacturing workers.<sup>48</sup> At the same time, we can begin to see the increasing growth and development of new biotechnology firms. In fact, greater Boston has, in less than a decade, become a world center for biotechnology work.<sup>49</sup> The shedding of old firms, combined with the instability of maturing firms and the birthing of new companies, is a recipe for turmoil and anguish. And yet it will remain part of our economic diet for years to come. The shedding of industry points to the need to constantly reinforce innovation and creativity at our universities, technical schools, laboratories, and centers for research and development. It also means that we need to accept shedding as a way of life. We cannot bring back the past, but we can prepare for the future.

The implementation of all these recommendations will help to create a climate that is supportive of reindustrialization. The process is painful, and it will often take a long time to see results. In fact, in one of our communities, it has taken five years before positive change has begun to occur. There are few examples of win-win in these communities. It is usually the older workers who are hurt the most. The fact remains that we have little choice. Either we plan or we are planned upon.

Where will this end? We don't know. We do know that high-tech growth has leveled off; that some companies are no longer growing in the region; and that recent months have seen major declines in profits and resulting layoffs among last year's stars. We also know that once an industry becomes labor intensive, as high technology appears to be, it will no longer expand in New England and may even relocate to the Pacific Rim. Tomorrow we may have a whole host of new communities that need the same attention that the mature-industry towns need now. Of course, there are robotics, genetics, and fiber optics . . .



## Appendix A

### Communities Examined

The following chart summarizes our research and planning work in forty Massachusetts cities and towns that once had, and may still have, a mature industrial base. While our research did not always focus solely on industrial activities, we did examine the state of the industrial base in each community and the problems and prospects with regard to same. The descriptions in the Industrial Status column are explained in the beginning of the article. The comments at the end of each entry are an attempt to succinctly point out a critical factor influencing the current condition of industry in each community.

The contracts for our work were undertaken by LandUse, Inc., and Mullin Associates and for the most part were locally funded. We also received some state contracts, particularly for our work in the northern Berkshires and as part of a statewide infrastructure study. The grants were awarded by the University of Massachusetts Center for Economic Development and Center for the Environment and by the Healey Foundation.

### Massachusetts Communities Analyzed

Community	How Researched	Industrial Status	Comment
1. <b>Adams</b>	Incubator Industry Contract	Declining	Old industries are leaving, and few industries are relocating here. Adams's location is distant from interstate routes.
2. <b>Athol</b>	Studio Projects—Regional Planning Program	Declining	Athol has been devastated by the collapse of the machine-trades business.
3. <b>Auburn</b>	Master Plan Contract	Recovered	Despite recovery, industrial uses are now tending toward warehousing and distribution.
4. <b>Barre</b>	Cox Grant	Declining	This beautiful town has thousands of square feet of vacant mill space.
5. <b>Chicopee</b>	Incubator Industry Contract	Recovering	Cabot Mills are at capacity; the Uniroyal complex is vacant.
6. <b>Clinton</b>	Leominster Contract	Declining	Clinton is in transition. Some new industries are located here, but the town is still in decline.
7. <b>Colrain</b>	Healey Grant	Indeterminate	Kendall Mills are beyond recovery for industrial uses.
8. <b>Easthampton</b>	Master Plan Contract	Declining	EastCo Corporation recently closed; tool making is in decline.
9. <b>Erving</b>	Franklin County Planning Grant	Stable	Erving Paper is still investing in the community.
10. <b>Fitchburg</b>	Zoning Contract	Declining	Fitchburg's industrial base is changing. Traditional firms are leaving; there has been some replacement. The city has an excellent promotion program.
11. <b>Franklin</b>	Leominster Contract	Recovered	Franklin is now a high-tech center, owing primarily to location, land, and promotion. The services sector is increasing, however.
12. <b>Gardner</b>	Master Plan Contract	Recovering	Gardner's new industrial park is almost full, and its chair industry is due to be revitalized.
13. <b>Gleasondale</b>	Infrastructure Grant, Commonwealth of Massachusetts	Stable	Gleasondale is a home for small industries.



Community	How Researched	Industrial Status	Comment
14. <b>Greenfield</b>	Machine Trades Incubator Contract	Declining	The town is healthy, but its industrial base is in decline, owing to the collapse of the machine trades.
15. <b>Hartwick</b>	Healey Grant	Declining	Hartwick's old mills are heavily underutilized and/or vacant.
16. <b>Holyoke</b>	Industrial Revitalization Contract	Recovering/ Stable	Holyoke has some new industry, although its old industries are in decline. There is pressure to convert its mills to commercial/residential use.
17. <b>Hudson</b>	Leominster Contract	Recovered	Because of its location and strong promotional activities, Hudson is booming.
18. <b>Lawrence</b>	Grant for a Studio Project	Recovering	Its strong labor force, strong industrial orientation, and great location make Lawrence a prime site for further activity.
19. <b>Leominster</b>	Plastics Incubator Contract	Recovering	Leominster's plastics industry remains relatively healthy.
20. <b>Lowell</b>	National Park Service Grant	Recovered	Lowell's recovery has been fueled by its infrastructure, labor, land, and promotion, and by Wang Labs.
21. <b>Ludlow</b>	Master Plan Contract	Declining	Ludlow Mills are largely vacant or used for storage, and are managed by an absentee landlord.
22. <b>Marlboro</b>	Leominster Contract	Recovered	Marlboro's recovery has been stimulated largely by its proximity to Route 495. A major shift toward the service sector is in process.
23. <b>Maynard</b>	Infrastructure Study Grant from the Commonwealth of Massachusetts	Recovered	Maynard is the home of the Digital Equipment Corporation.
24. <b>Milford</b>	Leominster Contract	Recovered	Milford's recovery has been fueled largely by its excellent location and infrastructure. A major shift is taking place toward the service sector.
25. <b>Millers Falls</b>	Academic Research	Declining	The collapse of its tool and die industry, with only minor replacement, has caused the town's decline.
26. <b>Monroe</b>	Community Development Corporation Grant	Indeterminate	The major industrial building in Monroe is beyond salvage.
27. <b>Monson</b>	Studio Project—Regional Planning Program	Declining	Monson's decline is due largely to the collapse of the Church Seat Company.
28. <b>North Adams</b>	Contract from the Governor's Commission on the Northern Berkshires	Declining	The pullout of the Sprague Corporation was devastating.



	Community	How Researched	Industrial Status	Comment
29.	<b>Northampton</b>	Incubator Industry Contract	Stable	There is no room here for industrial development; the old mills have been converted to nonindustrial use.
30.	<b>Orange</b>	Studio Project—Regional Planning Program	Declining	As Athol goes, so goes Orange. There are some hints of recovery, however.
31.	<b>Southbridge</b>	Academic Research	Declining	Southbridge's status is due largely to the decline of its optical industry.
32.	<b>Templeton</b>	Zoning Contract	Stable	The old industrial base is still strong. Templeton is increasingly a bedroom town.
33.	<b>Three Rivers</b>	Healey Grant	Stable	The paper mill remains prosperous.
34.	<b>Turners Falls</b>	Healey Grant	Declining	The old mills are heavily underutilized.
35.	<b>Uxbridge</b>	Private Contract	Declining	Uxbridge's decline is due in part to poor zoning, but the greatly expanded Route 146 has infused great hope.
36.	<b>Waltham</b>	Infrastructure Grant, Commonwealth of Massachusetts	Recovered	Waltham's traditional industries have virtually all been replaced.
37.	<b>Ware</b>	Master Plan Contract	Declining	Ware is increasingly a bedroom community; its old mills are only a shadow of their former selves.
38.	<b>West Springfield</b>	Housing Survey Contract	Declining	West Springfield's industrial uses are in decline; the town is prosperous but is being converted into a commercial center.
39.	<b>Westfield</b>	Incubator Industry Grant (U.Mass. Center for Economic Development)	Stable/ Declining	Westfield's machine trades are in decline.
40.	<b>Whitinsville</b>	Academic Research	Recovering	Whitinsville Works are now filling up with small industries and other uses.



Appendix B  
**Industrial Survey Questionnaire**

**Record Type 1: Introductory Information**

---

1. **Name of company:**
2. **Name of person being interviewed:**
3. **Rank in company:**
4. **Telephone number:**
5. **Address of company:**
6. **Date of interview:**
7. **Case ID #:**

**Record Type 2: History of Company**

---

1. **What prompted formation of the company?**
  - a. new product
  - b. general business experience
  - c. pullout of previous firms
  - d. spinoff
  - e. buy-out
  - f. extend family business
  - g. other
  - h. not applicable
2. **Where was the business started?**
  - a. in town
  - b. within 50 miles of town
  - c. within 50–200 miles of town
  - d. > 200 miles from town
  - e. other
  - f. not applicable
3. **Where did the founder live at the time of start-up?**
  - a. in town
  - b. within 50 miles of town
  - c. within 50–200 miles of town
  - d. > 200 miles from town
  - e. not applicable
4. **When was business started?**
  - a. < 1 year ago
  - b. 1–2 years ago
  - c. 3–4 years ago
  - d. 5–10 years ago
  - e. 10–15 years ago
  - f. > 15 years ago
  - g. > 25 years ago
5. **Major skill of founder:**
  - a. machine operation
  - b. experience with product or service
  - c. machine design/redesign
  - d. marketing/sales/management
  - e. unknown
  - f. other
  - g. not applicable
6. **First customers (location):**
  - a. in town
  - b. within 50 miles of town
  - c. within 50–200 miles of town
  - d. nationwide
  - e. worldwide
  - f. other
  - g. not applicable
7. **First type of customer and size (SIC code and relatively small or relatively large):**
8. **First financing:**
  - a. owner
  - b. owner and bank
  - c. stock
  - d. don't know
  - e. other
  - f. not applicable
9. **First major product:**



**10. Major problem when starting:**

- |                        |                   |
|------------------------|-------------------|
| a. financial           | e. transportation |
| b. marketing and sales | f. none           |
| c. product development | g. don't know     |
| d. labor               | h. not applicable |

**11. How many times has the company moved?**

- |      |                   |
|------|-------------------|
| a. 0 | d. 3              |
| b. 1 | e. 4+             |
| c. 2 | f. not applicable |

**12. Why did the company move?**

- |                           |                     |
|---------------------------|---------------------|
| a. better/larger building | e. bought own place |
| b. better/larger site     | f. lower cost       |
| c. amenities              | g. better location  |
| d. rent/lease problems    |                     |

**13. Why is the company still in town?**

- |                      |                                |
|----------------------|--------------------------------|
| a. community roots   | e. cost of leaving vs. staying |
| b. close to market   | f. quality of life             |
| c. close to supplies | g. other                       |
| d. labor force       | h. not applicable              |

**14. Form of ownership when started:**

- |                 |                   |
|-----------------|-------------------|
| a. individual   | f. Chapter S      |
| b. partnership  | g. subsidiary     |
| c. family-owned | h. other          |
| d. corporation  | i. not applicable |
| e. stock        |                   |

**15. Form of ownership now:**

- |                 |                   |
|-----------------|-------------------|
| a. individual   | f. Chapter S      |
| b. partnership  | g. subsidiary     |
| c. family-owned | h. other          |
| d. corporation  | i. not applicable |
| e. stock        |                   |

**Record Type 3: Management and Marketing**

**Who performs the following services (questions 1 through 8)?**

**1. R & D**

- |                         |                          |
|-------------------------|--------------------------|
| a. self and family      | e. corporate level       |
| b. full-time employee   | f. contract outside town |
| c. part-time employee   | g. other                 |
| d. contract out in town | h. not applicable        |

**2. Management**

- |                         |                          |
|-------------------------|--------------------------|
| a. self and family      | e. corporate level       |
| b. full-time employee   | f. contract outside town |
| c. part-time employee   | g. other                 |
| d. contract out in town | h. not applicable        |

**3. Sales**

- |                         |                          |
|-------------------------|--------------------------|
| a. self and family      | e. corporate level       |
| b. full-time employee   | f. contract outside town |
| c. part-time employee   | g. other                 |
| d. contract out in town | h. not applicable        |



4. **Accounting/Bookkeeping**

- a. self and family
- b. full-time employee
- c. part-time employee
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

5. **Clerical**

- a. self and family
- b. full-time employee
- c. part-time employee
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

6. **Production**

- a. self and family
- b. full-time employee
- c. part-time employee
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

7. **Warehouse**

- a. self and family
- b. full-time employee
- c. part-time employee
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

8. **Transportation**

- a. self and family
- b. full-time employee
- c. part-time employee
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

**How is company managed (questions 9 through 13)?**

9. **Who manages day to day?**

- a. self and family
- b. foreman/mid-level management
- c. department
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

10. **Who makes policy decisions?**

- a. self and family
- b. foreman/mid-level management
- c. department
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

11. **Who cultivates new business?**

- a. self and family
- b. foreman/mid-level management
- c. department
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

12. **Who has new ideas?**

- a. self and family
- b. foreman/mid-level management
- c. department
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable

13. **Who handles major problems?**

- a. self and family
- b. foreman/mid-level management
- c. department
- d. contract out in town

- e. corporate level
- f. contract outside town
- g. other
- h. not applicable



14. **Do you have a formal or informal chain of command?**  
a. formal  
b. informal  
c. other (specify)  
d. not applicable
15. **Do you have a business plan?**  
a. yes  
b. no
16. **If yes, is the business plan written?**  
a. written  
b. not written  
c. not applicable
17. **If there is a plan, what is the timeline?**  
a. < 1 year  
b. 1 year  
c. 2 years  
d. 3-4 years  
e. 5 years +  
f. not applicable
18. **How often do you prepare financial statements?**  
a. monthly  
b. quarterly  
c. annually  
d. semiannually  
e. other

**Record Type 4: Employee Information**

---

1. **Total number of employees:**
2. **Current number of full-time employees:**
3. **Current number of part-time employees:**
4. **Current number of seasonal employees:**
5. **Change in number of full-time employees since 1979:**  
a. net increase  
b. net decrease  
c. no change  
d. not applicable
6. **Change in number of part-time employees since 1979:**  
a. net increase  
b. net decrease  
c. no change  
d. not applicable
7. **Change in number of seasonal employees since 1979:**  
a. net increase  
b. net decrease  
c. no change  
d. not applicable
8. **Change in number of full-time employees since spring of 1983:**  
a. net increase  
b. net decrease  
c. no change  
d. not applicable
9. **Change in number of part-time employees since spring of 1983:**  
a. net increase  
b. net decrease  
c. no change  
d. not applicable
10. **Change in number of seasonal employees since spring of 1983:**  
a. net increase  
b. net decrease  
c. no change  
d. not applicable
11. **Average hourly wage (amount or range):**
12. **Number of employees that live in town:**



13. **Number of employees that live outside town:**
14. **Educational background of most employees:**
  - a. high school
  - b. technical or trade school
  - c. some college
  - d. college degree
  - e. post-bachelor degree
  - f. wide range of educational backgrounds
15. **Required skills of employees:**
  - a. machinist
  - b. machine repair/redesign
  - c. plumbing
  - d. electrical
  - e. sales and marketing
  - f. basic math/English
  - g. mechanical ability
  - h. product experience
  - i. management
  - j. transportation
  - k. welding
  - l. good attitude
  - m. carpentry
  - n. technical skills
  - o. none
  - p. other
16. **Additional skills:**
  - a. machinist
  - b. machine repair/redesign
  - c. plumbing
  - d. electrical
  - e. sales and marketing
  - f. basic math/English
  - g. mechanical ability
  - h. product experience
  - i. management
  - j. transportation
  - k. welding
  - l. good attitude
  - m. carpentry
  - n. technical skills
  - o. none
  - p. other
17. **Average age of employees:**
  - a. teens
  - b. twenties
  - c. thirties
  - d. forties
  - e. fifties +
  - f. wide range of ages
18. **Percentage of employees that are male:**
19. **Percentage of employees that are female:**
20. **Percentage of employees that are married:**
21. **How did your employees come to work for you?**
  - a. advertisement
  - b. personal recommendation
  - c. through high school
  - d. word of mouth
  - e. unemployment office
  - f. other (specify)
22. **Where are they from?**
  - a. in town
  - b. within 50 miles of town
  - c. within 50–200 miles of town
  - d. other
23. **What is the most common reason that employees give for leaving your company?**
  - a. higher pay
  - b. take a job where there is a union
  - c. work for themselves
  - d. layoff
  - e. job security and benefits
  - f. leave area
  - g. retire
  - h. career path
  - i. conditions of job
  - j. fired
  - k. other (specify)
  - l. not applicable
24. **When employees leave your company, where do they go?**
  - a. back to school
  - b. another company of approximately same size
  - c. larger company
  - d. start their own company
  - e. leave area
  - f. don't know
  - g. other (specify)
  - h. not applicable



**25. Looking ahead, what new skills will you be looking for when you hire new employees?**

- |                            |                     |
|----------------------------|---------------------|
| a. machinist               | i. managerial       |
| b. machine repair/redesign | j. transportation   |
| c. plumbing                | k. welding          |
| d. electrical              | l. good attitude    |
| e. sales and marketing     | m. carpentry        |
| f. basic math/English      | n. technical skills |
| g. mechanical ability      | o. none             |
| h. product experience      | p. other            |

**Record Type 5: Plant Facilities**

---

1. **Interior square footage:**
2. **Exterior square footage:**
3. **Percentage of space used for offices:**
4. **Percentage of space used for sales:**
5. **Percentage of space used for production:**
6. **Percentage of space used for warehouse:**
7. **Does the company own or rent facilities?**

a. own	c. other
b. rent	d. not applicable
8. **If rent, why did company choose to rent?**

a. lack money to buy	d. other
b. keep assets liquid	e. not applicable
c. less expensive than buying	
9. **If rent, what is the rent per square foot including utilities?**
10. **If rent, what is the rent per square foot without utilities?**

**Record Type 6: Relationship to Local Economy (Products/Services)**

---

1. **Current products/services (SIC codes):**
2. **What percentage of the company's business is wholesale?**
3. **What percentage of the company's business is retail?**
4. **What percentage of the company's business is subcontract?**
5. **Who are your major customers (type and size)?**
6. **Location of major customers:**

a. in town	d. nationwide
b. within 50 miles of town	e. worldwide
c. within 50-200 miles of town	f. other
7. **(If haven't mentioned any) Are there any local customers?**

a. yes	c. not applicable
b. no	
8. **Who are the company's major suppliers (type and size)?**
9. **Location of major suppliers:**

a. in town	d. nationwide
b. within 50 miles of town	e. worldwide
c. within 50-200 miles of town	f. other

10. (If haven't mentioned any) Are there any local suppliers other than for general maintenance?

- a. yes
- b. no
- c. not applicable

11. Who are your major competitors (type, size)?

11a. Foreign competition:

12. Location of major competitors:

- a. in town
- b. within 50 miles of town
- c. within 50-200 miles of town
- d. nationwide
- e. worldwide
- f. other

13. Percentage of supplies transported to you by road:

14. Percentage of supplies transported to you by rail:

15. Percentage of supplies transported to you by air:

16. Percentage of products you market transported by road:

17. Percentage of products you market transported by rail:

18. Percentage of products you market transported by air:

19. What is your competitive advantage?

- a. new product
- b. new technique
- c. unique operations/services
- d. low price
- e. quality/reputation
- f. sales and management
- g. site specific
- h. other (specify)
- i. no competitive advantage

20. Does the company have any patents?

- a. yes
- b. no
- c. not applicable

21. Does the company have any patents pending?

- a. yes
- b. no
- c. not applicable

#### Record Type 7: Financial Information

1. Approximately what percentage of the capital you've used has come from the following sources?

- a. your own
- b. family
- c. other private
- d. partnership
- e. banks
- f. venture capital
- g. city sources (UDAG, CDBG, other)
- h. state sources (IRB, MTDC, other)
- i. federal sources (SBA, other)
- j. other (specify)

2. What percentage of equipment did the company buy new?

3. What percentage of equipment did the company buy used?

4. What percentage of equipment did the company build or rebuild itself?

5. If owned, what is the assessed value of your facilities (property and building)?

- a. less than \$50,000
- b. \$50,000 to \$100,000
- c. \$100,000 to \$250,000
- d. \$250,000 to \$500,000
- e. \$500,000 to \$1 million
- f. \$1 million to \$10 million
- g. more than \$10 million
- h. don't know



## Record Type 8: Problems and Assistance

---

1. **Does your location cause you any problems?**
  - a. yes
  - b. no
2. **Describe major problems with structure, if any:**

a. energy inefficient	f. expansion capability
b. inappropriate for activity	g. no problem
c. needs repairs	h. other
d. comfort-safety	i. not applicable
e. amenities-image	
3. **Describe other problems with structure, if any:**

a. energy inefficient	f. expansion capability
b. inappropriate for activity	g. no problem
c. needs repairs	h. other
d. comfort-safety	i. not applicable
e. amenities-image	
4. **Describe problems with land, if any:**

a. too small	e. no problem
b. unusable (steep, wet)	f. other
c. amenities-image	g. not applicable
d. expansion capability	
5. **Describe problems with neighbors/compatibility, if any:**

a. vandals-safety	d. no problem
b. neighbor complaints	e. other
c. amenities-image	f. not applicable
6. **Describe problems with transportation, if any:**

a. major routes far away	e. no problem
b. lack public transportation	f. other
c. lack RR-truck service	g. not applicable
d. road-bridge conditions	
7. **Describe problems with access-egress, if any:**

a. loading-dock problem	e. no plowing
b. access to site	f. no problem
c. traffic	g. other
d. streets incompatible	h. not applicable
8. **Describe problems with zoning, if any:**

a. nonconforming use	e. no problem
b. signage restrictions	f. other
c. other restrictions	g. not applicable
d. expansion capability	
9. **Do you have any labor difficulties?**
  - a. yes
  - b. no
10. **If yes, is the difficulty with:**

a. training	f. unionization
b. skills	g. attitude
c. cost	h. other
d. availability	i. not applicable
e. excessive turnover	

**11. Do you have any marketing difficulties?**

- a. yes
- b. no

**12. If yes, is the difficulty with:**

- a. general economic times
- b. need more/new customers
- c. need to enlarge market geographically
- d. competition
- e. poor market analysis
- f. other
- g. not applicable

**13. What changes, if any, have you noticed in your market?**

- a. local/regional population decline
- b. increased demand
- c. decreased demand
- d. steady market
- e. fluctuating market
- f. increased public contracts
- g. decreased public contracts
- h. increased competition
- i. customers out of business
- j. change in customers
- k. less competition
- l. foreign imports
- m. none
- n. other
- o. not applicable

**14. What are you doing about these changes?**

- a. diversifying product line
- b. increasing sales/advertising efforts
- c. R & D
- d. increasing production/sales staff
- e. decreasing production/sales staff
- f. expanding geographically
- g. cutting costs
- h. nothing
- i. other
- j. not applicable

**15. Is the company profitable?**

- a. yes
- b. marginally profitable
- c. not profitable

**16. Are you having significant difficulties with:**

- a. cash flow
- b. collections
- c. getting credit
- d. interest rates from banks
- e. insurance rates or coverage
- f. overhead
- g. cost of supplies
- h. none
- i. other

**17. Are you having other difficulties with:**

- a. cash flow
- b. collections
- c. getting credit
- d. interest rates from banks
- e. insurance rates or coverage
- f. overhead
- g. cost of supplies
- h. none
- i. other

**18. Describe contact with SBA:**

- a. no contact
- b. satisfactory
- c. too much paperwork
- d. loan request too small
- e. too expensive
- f. other problems

**19. Describe contact with Federal Extension:**

- a. no contact
- b. satisfactory
- c. unsatisfactory
- d. other



20. **Have you had contact with other federal agencies?**  
a. yes  
b. no
21. **Describe contact with Department of Commerce:**  
a. no contact  
b. satisfactory  
c. unsatisfactory  
d. other
22. **Describe contact with MIFA:**  
a. no contact  
b. satisfactory  
c. unsatisfactory  
d. other
23. **Describe contact with MTDC:**  
a. no contact  
b. satisfactory  
c. unsatisfactory  
d. other
24. **Describe contact with SBDC:**  
a. no contact  
b. satisfactory  
c. unsatisfactory  
d. other
25. **Have you had contact with other state agencies?**  
a. yes  
b. no
26. **Describe contact with City Hall/Economic Development Office:**  
a. no contact  
b. satisfactory  
c. unsatisfactory  
d. other
27. **Describe contact with Chamber of Commerce:**  
a. no contact  
b. satisfactory  
c. belong-no benefits  
d. doesn't serve interests  
e. too expensive, time-consuming  
f. other
28. **Have you had contact with other local agencies?**  
a. yes  
b. no
29. **Describe experience with job-skills training program:**  
a. no contact  
b. satisfactory  
c. unsatisfactory
- 

## Notes

1. For a summary of this shift, see Mark McLaughlin, "The Disappearing Smokestack," *New England Business* (15 September 1986): 15-24. Also see Lynn E. Browne, "High Technology Industry in the World Market Place," *New England Economic Review* (May-June 1986): 21-25.
2. See Charles Stein, "State Economy: From Bust to Boom," *Boston Sunday Globe*, 2 September 1984, 1; David Warsh, "1986 - How Long Will the Good Times Last in Massachusetts?" *Boston Sunday Globe*, 26 January 1986, A1; and Charles Kenney, "The Comeback State," *Boston Globe Magazine*, 10 May 1986, 14.
3. This transformation is explained in John S. Hekman and John S. Strong, "The Evolution of New England Industry," *New England Economic Review* (March-April 1981): 35-46. Also see Sarah Kuhn, *The Computer Industry of New England* (Cambridge, Mass.: Harvard/MIT

- Joint Center for Urban Studies, 1982); Jeanne H. Armstrong, John R. Mullin, and Jean S. Kavanagh, "From Mill Town to Mill Town: The Transition of a New England Town from a Textile to a High Technology Economy," *Journal of the American Planning Association* 52, no. 1 (Winter 1986): 47-49; and Lynn E. Browne, "The New England Economy and the Development of High Technology Industries," *New England Economic Indicators* (August 1984): A3-A6.
4. Governor Michael S. Dukakis has labeled these areas "targets of opportunity." See Central Massachusetts Regional Planning Commission, *Blackstone Valley Industrially Zoned Land Survey and Analysis* (Worcester, Mass.: Blackstone Valley Regional Economic Development Committee, 1982); and the Governor's Commission on the Future of Mature Industries, *Final Report* (Boston: Commonwealth of Massachusetts, 1984).
  5. These points are founded on our research across Massachusetts. See, for example, Jeanne H. Armstrong and John R. Mullin, "The Role of Incubator Industries in the Local Economy," *Northeast Journal of Business and Economics* 11, no. 1 (Winter 1984): 35-44; idem., "The Role of Incubator Industries in the Retention and Expansion of Local Firms," *Proceedings, Conference on Community Economic Development*, Columbus, Ohio, 15 October 1985; and idem., "The Retention and Expansion of Local Firms: A Vital Component in Community Economic Development," *Proceedings, Northeast Symposium on Rural Economic Development*, Amherst, Massachusetts, June 1985.
  6. Our recent work in the northern Berkshires presents a typical depiction of this problem. Upon the pullout of the Sprague Electric Company, the city and its Chamber of Commerce undertook a campaign to attract new industry. When the representatives of firms planning relocation came to the city, they heard of labor strife and quickly looked elsewhere. A careful look at the labor problems, however, reveals that the overwhelming number of problems centered upon management's failure to follow the letter of contractual agreements. Interview with Ray Bourque, president of the local chapter of the International Union of Electrical Workers, North Adams, Massachusetts, 13 April 1985.
  7. James Howell, chief economist of the Bank of Boston, has written that perhaps what is required is a means to "hurry history along." In other words, communities should not attempt to resuscitate firms that are in decline in the region. See James Howell, "The New England Economic Revitalization and Future Research Priorities," *New England Journal of Public Policy* (Winter-Spring 1985): 6-8. Also see Kathryn Harrigan and Michael E. Porter, "End-Game Strategies for Declining Businesses," *Harvard Business Review* 61, no. 4 (July-August 1983): 111-20; and Lester Thurow, *The Zero-Sum Game* (New York: Basic Books, 1980), 77.
  8. A current example of this phenomenon can be seen in the northern Berkshires. In a survey of high school seniors in the area, respondents overwhelmingly and regretfully noted that they would have to leave the area in order to become gainfully employed. Upon listening to the findings in a public forum, one parent responded that she had raised her children from birth with the idea that they would have to leave the area, since they simply had no future there. See the Subcommittee on Labor, Governor's Task Force on the Northern Berkshires, *Working Papers*, 15 April 1985.
  9. See Bennett Harrison, *Rationalization, Restructuring and Industrial Re-Organization in Older Regions*, Working Paper #72, Joint Center for Urban Studies of the Massachusetts Institute of Technology and Harvard University, Cambridge, Massachusetts, 1982.
  10. For examples of worker buy-out options, see Northeast-Midwest Institute, *Shutdown: A Guide for Communities Facing Plant Closings* (Washington, D.C.: Northeast-Midwest Institute, 1982). Also see Samuel Bowles, David M. Gordon, and Thomas Weiskopf, *Beyond the Wasteland: A Democratic Alternative to Economic Decline* (New York: Anchor Books, 1984). In Massachusetts, the worker-owned alternative is being currently explored for both the Sprague Millworks in North Adams and the General Dynamics Shipyard in Quincy.
  11. Despite this wage differential, protectionist sentiment appears to be ever increasing. In 1985 alone, more than two hundred bills were filed in Congress to "protect" U.S. industry. See "Dropping the Other Shoe," *Time* 26, no. 10 (10 September 1985): 263. Also see "The



- Hollow Corporation," *Business Week* (3 March 1986): 57; and William J. Abernathy, Kim B. Clark, and Alan M. Kantson, "The New Industrial Competition," *Harvard Business Review* 59, no. 5 (September–October 1981): 68–81.
12. Interview with Lawrence Adams, economic development coordinator, City of Gardner, 2 January 1987.
13. Jeanne H. Armstrong, John R. Mullin, and John Whiteman, *The Revitalization of Leominster's Plastics Industry*. Forthcoming.
14. This point is made in Robert Perkins, "Western Massachusetts Economic Growth Lags Far Behind State and Nation," *Springfield Sunday Republican*, 20 April 1986, 1, A13. Also see Jeanne H. Armstrong and John R. Mullin, *The Chicopee Incubator Industry Feasibility Study* (Chicopee, Mass.: Office of Community Development, 1985).
15. In western Massachusetts, the cities of Springfield, Chicopee, and North Adams and the towns of Monson, Easthampton, Greenfield, and Athol have all recently experienced plant closings. And yet the regional unemployment rate is still a remarkably low 6 percent. For a review of other communities suffering from plant closings, see U.S. House of Representatives Committee on Small Business, *Hearings Before the Sub-Committee on Anti-Trust and Restraint of Trade Activities Affecting Small Business* (Washington, D.C.: U.S. Government Printing Office, 1980).
16. Interview with Ann Hakenson, economic development coordinator, City of Leominster, 13 August 1986.
17. In western Massachusetts alone, there are still large millyards and state hospital grounds that are either vacant or extremely underutilized. For example, the Ware Millyard, the Sprague Millyard (North Adams), the Uniroyal complex (Chicopee), the Northampton State Hospital, and the Belchertown State Hospital each has more than 500,000 square feet of usable space. While there can be problems with the reuse of this space, they can be overcome. As well, see Denis E. Walsh, *Action Plan for Haverhill, Massachusetts* (Boston: Massachusetts Department of Community Affairs, 1978); idem., *Action Plan for Lawrence, Massachusetts* (Boston: Massachusetts Department of Community Affairs, 1978); and Anthony Yudis, "Filling Old Mills with New Business," *Boston Globe*, 23 October 1983, A73–A74.
18. For a summary of the methods necessary for stimulating the revitalization of old mills and for a series of case studies, see the National Trust for Historic Preservation, *The Millworks Handbook* (Washington, D.C.: National Trust for Historic Preservation, 1983).
19. This point was constantly reinforced in our interviews with more than 150 chief executives of small firms. See Jeanne H. Armstrong and John R. Mullin, "Incubator Industries in the Local Economy," *Northeast Business and Economic Journal* 2, no. 1 (Winter 1984): 35–44.
20. Interview with Will Reed, Williams College vice president for finance, Williamstown, Massachusetts, 26 April 1985.
21. See Barry Werth, "The Father, the Son, and the Town," *New England Monthly* (June 1985): 57–63.
22. See Jeanne H. Armstrong, John R. Mullin, and John Whiteman, "The Role of the Incubator Industry Data Base Project in the Retention and Expansion of Local Firms," paper presented to the Conference on Community Economic Development, Columbus, Ohio, 15 October 1985.
23. For a review of the impact of mature-industry plant closings on western Massachusetts, see Robert Perkins, "WMASS Mid Class Hit Hard as Jobs in Factories Disappear," *Springfield Union*, 20 April 1986, 1.
24. These data are noted in Charles Stein, "Manufacturing Loses . . .," *Boston Globe*, 21 October 1986, 57.
25. These remarks were part of an address by Rob Trowbridge to the Economic Development Session, Conference of New England Chapter of the American Planning Association, Bos-

ton, 3 December 1983.

26. It is only in the 1980s that we have even begun to see the need for planners to get involved in industrial-planning activities. See William W. Goldsmith and Harvey M. Jacobs, "The Improbability of Urban Policy: The Case of the United States," *Journal of the American Planning Association* 48, no. 1 (Winter 1982): 61. Also see A. Bruce Dotson, "Plant Closings and the Situation of Cities — A Review Essay," *Journal of the American Planning Association* 49, no. 3 (Summer 1983): 358. For a summary of how communities have focused their efforts, see International City Managers Association, "Facilitating Economic Development: Local Government Activities and Organization Structures," *Baseline Data Report* 16, no. 11/12 (1984): 1-23.
27. See Lawrence E. Susskind, *Proposition 2½: Its Impact on Massachusetts* (Boston: Oelgeschlager, Gunn and Hain, 1983).
28. See Jeanne H. Armstrong, Meir Gross, and John R. Mullin, "Building More Bricks with Less Straw," *Massachusetts Infrastructure Project Report of Research*, vol. 2 (Amherst, Mass.: University of Massachusetts, 1985), 1-11.
29. Many of these problems are discussed in Massachusetts Taxpayers Foundation, *Concrete Realities: The Capital Needs of Massachusetts Cities and Towns and the State's Assistance* (Boston: Massachusetts Taxpayers Foundation, 1984).
30. A major problem still remains: Is the planner a hard-charging implementor or is he/she a safeguard for citizen input ("process commandos")? For a succinct discussion of this topic, see John Powers, "Boston's 21st Century Man: BRA Director Stephen F. Coyle," *Boston Globe Magazine*, 1 June 1986, 28-30.
31. This point is made in terms of the national level by Robert Reich. See Alan M. Kantrow, ed., "The Political Realities of Industrial Policy," *Harvard Business Review* 61, no. 5 (September-October 1981): 81.
32. The City of Pittsburg has taken extensive measures to correct this problem. See Edward deLuca, "Organizing and Operating a Development Department," in *Shaping the Local Economy*, ed. Cheryl A. Farr (Washington, D.C.: International City Management Association, 1984), 52.
33. In June of 1986 the authors informally surveyed approximately thirty city-planning directors to determine whether any were applying "early warning" techniques. None was using this tool or any like it.
34. This point is made in Franklin J. James and John P. Blair, "The Role of Labor Mobility in a National Urban Policy," *Journal of the American Planning Association* 49, no. 3 (Summer 1983): 307. Also see the President's Commission for a National Agenda for the 1980s, *A National Agenda for the 1980s* (Washington, D.C.: U.S. Government Printing Office, 1980), 64-71.
35. See Richard B. McKenzie, *Fugitive Industry: The Economics and Politics of Deindustrialization* (Cambridge, Mass.: Ballinger, 1984), 3-5.
36. For an overview of the problems related to infrastructure, see Michael Barker, ed., *Rebuilding America's Infrastructure: An Agenda for the 1980s* (Durham, N.C.: Duke University Press Policy Studies, 1984). Also see Pat Choate and Susan Walter, *America in Ruins* (Washington, D.C.: Council of State Planning Agencies, 1981).
37. See Jeanne H. Armstrong, Meir Gross, John R. Mullin, and Robert D. Yaro, "Infrastructure Planning in Rural Massachusetts," *Journal of Rural Studies* 2, no. 3 (Fall 1986): 179-80.
38. For a further examination of this point, see Lawrence Litvak, "Why Capital Markets Do Not Work Effectively for Small Businesses," *Entrepreneurial Economy* 1, no. 2 (August 1982): 3-4.
39. We recently came to grips with these competing pressures in Holyoke, where a revitalizing downtown is stimulating a change in the use of old mills from industrial to commercial and residential. See Jeanne H. Armstrong and John R. Mullin, *Holyoke Canal District Economic*



*Development and Restoration Project* (Hadley, Mass.: LandUse, Inc., 1985); prepared for the City of Holyoke Office of Industrial Affairs.

40. This point was reinforced in interviews with Gene Bunnell, city planner for Northampton (13 May 1985); Robert Bateman, industrial development director for Holyoke (23 May 1985); and Richard Lak, mayor of Chicopee (3 June 1986). Also see the National Trust for Historic Preservation, *The Millworks Handbooks* (Washington, D.C.: National Trust for Historic Preservation, 1983), and "Keeping Shipbuilding Alive," *Boston Sunday Globe*, 1 June 1986, 86.
41. The closing of the Quincy shipyard is a classic representation of this problem. See Douglas M. Bailey, "For Shipyard Workers, Job Search Begins with Learning Realities of Their Plight," *New England Business* 8, no. 6 (7 April 1986): 44. Also see Ethan Bronner, "Ship's Christening Signals Shipyard's Death," *Boston Globe*, 18 May 1986, 29.
42. See David L. Birch, "The Role of Small Business in New England," in *A Region's Struggling Savior: Small Business in New England*, ed. Jeffrey A. Timmons and David E. Gumpert, a technical report prepared for the SBANE Foundation, Boston, 1979, 28-29.
43. See Penelope Kim, *Marketing Industrial Space* (Amherst, Mass.: Center for Community Renewable Studies, 1978), 7. Concerning spinoffs, see George Kariotis, "High Tech Job Growth and the Social Contract," paper presented at the Conference on High Tech Firms and Central City Job Creation, Mount Holyoke College, South Hadley, Massachusetts, 16 April 1982.
44. See, for example, Jeanne H. Armstrong and John R. Mullin, *Westfield Incubator Industry Survey Report* (Amherst, Mass.: Center for Economic Development, 1983).
45. This point is made in Leonard Lund, *Factors in Corporate Locational Decisions* Report Number 66 (Washington, D.C.: Conference Board, 1979), 4-5.
46. For an elaboration of this point, see Jeanne H. Armstrong, Meir Gross, and John R. Mullin, "Building More Bricks with Less Straw," in *Massachusetts Infrastructure Project Report of Research*, ed. Edward Goldstein (Amherst, Mass.: University of Massachusetts, 1985), 7-10.
47. Lester C. Thurow, "Training the Dropout," *Boston Globe*, 29 July 1986, 40.
48. For example, of the thirteen thousand people employed by the Wang Corporation in New England, less than 30 percent are classified as manufacturing employees. See Jane Simon, "Tonic with a Twist," *New England Business* (15 September 1982): 19.
49. John Wilke, "Biotech Comes into Its Own," *Boston Globe*, 21 October 1986, 57.