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The Revitalization of New England's Small Town Mills:
Breathing New Life into Old Places

Zenia Kotval & John Mullin

Introduction

Over the past two decades, planners in small towns across New England have increasingly realized the potential value of their aged, outmoded and often decrepit mill complexes. Throughout most of the 19th and first part of the 20th centuries, these mills were the economic engines of their host communities.¹ In terms of the cultural landscape, they served as dominating icons in these places, often equaling the importance of civic and ecclesiastical structures.² By the middle of the 20th century, however, hundreds of these structures were closed or abandoned as new techniques of manufacturing and shifting markets made them obsolete.³ Today, they have, once again, become economically important due to the changing character of work in New England, a recognition that these structures are extremely adaptable and that they can play an integral role in meeting smart growth principles.⁴

Throughout New England, there are more than 400 small villages and towns whose evolution and development have been tied to the presence of a mill (Dunwell, 1978). In such communities, it was often stated that 'as the mill goes so goes the town' (see, for example, Boothroyd & Halprin, 1999, p. 8). The mills were typically quite modest, highly utilitarian and accented with few significant architectural features. They were tucked in hamlets away from large cities along waterways that provided the power to operate their machinery. Indeed, along virtually every river in New England that provided sufficient flow and drop, one could find mill after mill along the banks.⁵

These mills once focused on the manufacture of textiles, shoes, guns, clocks and other durables common to New England's old economy (Licht, 1995, pp. 22-23, 61-63). Their importance in terms of the American economy was eloquently summarized by Jane Jacobs:

In the nineteenth century, saws and axes made in New England cleared the forests of Ohio; New England ploughs broke the prairie sod, New England scales weighed wheat and meat in Texas; New England serge clothed businessmen in San Francisco, New England cutlery skinned tans to be tanned in Milwaukee and sliced apples to be dried in Missouri; New England whale oil lit lamps across the continent; New England blankets warmed children by night and New England textbooks preached at them by day; New England guns armed the troops; and New England dies, lathes, looms, forges, presses and screwdrivers outfitted factories far and wide. (Jane Jacobs, 1969, p. 203).

There are few who would marvel at these mill towns' beauty, and few who could point to great events that happened therein. And yet, they were the site of something marvelous, creative, and stunning. Theodore White (1960), in his famous book *The Making of the President* (1960), wrote quite powerfully about that contribution while summarizing the last day of John F. Kennedy's campaign:

The strange sense of American history, overlapping in the sequence of time, weighed heavily on all of us. Here in the Waterbury – Springfield – Torrington – Hartford quadrangle of New England had happened one of those episodes in man's history similar to the episode of Athens in its age of splendor. In this quadrangle, a century and a quarter ago, an outburst of Yankee genius had invented the technology of America and the world – all the arcane secrets of

¹ For a concise summary of how this occurred see Femins (2000).

² See, for example, the comments of Chevalier (1839) where he compares the factories to religious structures.

³ For an example of this transformation see Bluestone and Harrison (1982).

⁴ See, for example, Commonwealth of Massachusetts (2008).

⁵ The story of how this occurred is nicely explained in Steinberg (1991), see especially Chapter Two.

machine tools, precision machinery, interchangeable parts, mass production, alloys and tolerances had been worked out here first. (Theodore H. White, 1961, p. 34).

While these mills are rarely places where the durables required by the American nation are manufactured today, they are now being revitalized for a wide array of uses. These range from universities and colleges, museums, shopping centers, artist lofts, theatres and software companies to housing.⁶ It is clear that there is extensive re-use potential for many of these structures and complexes. It is equally clear that they are critical to New England's well-being. They are just as much a part of its current economic and cultural landscape as its historic districts or its gleaming high-technology centers. They are special places that deserve to be nurtured and, when possible, revitalized.

This article explains and analyzes just such efforts. It begins with a discussion of the typical characteristics of mills across New England and the factors that are important to consider when contemplating regeneration. It then moves to an examination of the importance of market conditions, the participation of local government, and the role of the developer; this is followed by a summary of the key lessons learned. Finally, we conclude with our thoughts on the future of these special places.

The term 'mill' requires definition. It means a place where raw materials (i.e.: wheat, wood, iron and cloth) are processed through various systems (i.e.: grinding, cutting, crushing and pulverizing) to create a product.⁷ The products were, for the most part, 'upstream materials' that were critical in the creation of final products that were created elsewhere. For example, the grinding of wheat created flour, which was essential for bread, and the cutting of trees resulted in boards that were used in constructing buildings.

Over time, as the processing industries left New England, other types of industries occupied their space. These ranged from plastics to electronics, computers software and defense industries (Best, 2001, 116-162). Clearly these operations do not fit the classical definition of a mill.⁸ Nonetheless, regardless of what they made or work they undertook, the place where these operations occurred was still called 'the mill', the complexes referred to as 'mill yards', and the small communities referred to as 'mill villages'. Icons often die hard!⁹

The term 'small mill community' also requires explanation. For the first part of the 19th century, there were two basic forms of mill community. The largest and most famous were those developed by the Boston Associates in Lowell, Lawrence and Chicopee, among other locations (Dalzell, 1987, Chapter Three). Called the Waltham or Lowell System, these mills were joint stock operations that had with large capitalization and standardized products. They were really mill cities. The second was the Slater

⁶ The National Trust for Historic Preservation was one of the early promoters of adaptive re-use in New England. See for example Donovan (1983). Also see Gause (1996).

⁷ Many of these processes are explained in Tunis (1999).

⁸ The term, we fear, has lost its clear meaning and is often now used interchangeably with 'factory'. See Tann (1970, pp. 3, 5, 27). Also see Biggs (1996, pp. 5-7).

⁹ For example, the Digital Equipment Corporation (DEC), one of America's premier computer companies for the last quarter of the 20th century purchased a 1.1 million square foot former woolen factory in Maynard, Massachusetts in 1957 as its world headquarters. Over the years, the company's employees fondly referred to the massive structure as 'The Mill'. See Schein (2003, p. 49).

or Rhode Island System. These mills were owned by families and limited partnerships, were often chronically under-funded and provided specialized products. The communities were village-like, small, isolated and rural.¹⁰ It is these smaller communities that represent our focus in the paper.

The Mill

The starting point for any reuse discussion should be the mill itself. Location, physical condition, and previous use will all play a critical role. Let us begin with location: most of our old mills are located in the center of the community along waterways. This poses several concerns: First, the mill is likely to be within the 100-year flood plain and probably does not conform to state or local wetlands protection acts or setback requirements from rivers. In many states, there are building footprint setbacks ranging from 25 to 100 feet. If structures are within these floodplains than there are severe restrictions on ground floor uses (i.e. no residential uses). We believe the law makes great sense for, throughout the twentieth century, virtually every mill along a river has experienced some flood damage.

Second, when the mill is located in the center of the community, it is often not easily accessible or visible from interstate highways. Indeed, mills are typically tucked miles away in a narrow valley along narrow, twisting roads (requiring truckers to move into low gear as they traverse through small villages and over aged bridges). Harrisville, New Hampshire, home of the Colony mill complex, is an excellent example of an isolated, almost forgotten, mill village (Armstrong, 1969).

The second critical issue is the physical condition of the building and site. Again, several factors determine the feasibility of revitalizing the mill. These include the size of the mill, the ease with which it can be divided into smaller spaces, the number of floors, the heating and ventilation systems and whether it can meet building code standards. Large complexes such as the former brass works in Waterbury, Connecticut, are difficult to reuse because they are centrally heated and upgrading or replacing that system would require tremendous reinvestment. By contrast, smaller structures, such as Kirby Mill in Mansfield, Connecticut, can be more easily adapted to modern needs (East Wharf Architects, 1994).

The age of the structure and whether it has stood the 'test of time' in terms of structural integrity is also a major factor. Too often the structure has deteriorated to a point where revitalization is just prohibitively expensive. We can vividly note this in the case of the Tap and Die complex in Greenfield, Massachusetts. Beautifully situated along the Green River, it was allowed to deteriorate to the point where it was beyond salvage (Orth, 2003, p. 1). What is most interesting is that the Town of Greenfield had previous experience in this regard: after its Bendix Mill closed, it moved quite quickly and revitalized the structure as a senior citizen complex. The teaching point is clear: neglect leads to ruin. It is also clear that smaller buildings, or larger complexes divided into multiple buildings, are better suited for revitalization. Two clear success stories in this regard are the Peace Dale, Rhode Island, mill complex (*Providence Journal* December 15, 2003), and the 1,100,000 square feet of space scattered in 13 buildings in Clock Tower Place in Maynard, Massachusetts (Kotval & Mullin, 2006). Building materials play a key role as well. Bricks and stone buildings stand the test of time far better than wooden

¹⁰ See, for example, 'Slatersville' in Jordy (2004, pp. 244-249).

construction. An example of this can be found in Brattleboro, Vermont, where the town has struggled for years to preserve the famed Estey Organ Works. Primarily of wood construction, it was allowed to rot for decades. Today, the town is endeavoring to save at least part of the complex.¹¹

Beyond the physical condition of the mill, one also needs to examine its history of use. What raw materials were stored on site, and what products were developed? Past and present uses provide a quick indication of structural qualities such as load bearing capacity and the versatility of space. More importantly, however, the previous uses are a good preliminary indicator of whether environmental contamination is likely. As we are acutely aware, environmental contamination is a major concern for brownfield revitalization. Local historians in our small mill communities regularly relate stories about their textile and paper mills coloring the local rivers with the residue of industrial dyes or chemicals. The paper mills along the Hoosic River in Berkshire County, Massachusetts, for example, were causing serious illness as early as the turn of the century (Cumbler, 2001, p. 243). There are tales of the Nashua River flowing with a different color each day depending on the product of the day from its woolen mills (Kirkpatrick, 1971, p. 35). Early detection of possible environmental concerns will save a community, and the developer, valuable resources of all kinds. One such success story is the Doyle mill complex in Leominster, Massachusetts. Here, the Borden Chemical Company and the city worked together to clean up the chemical residue of more than 50 years of plastics production. New companies now occupy the site.

Finally, it is important to analyze how the mill complex fits into the town's master plan. A plan that supports revitalization – for example, by stating that the community is willing to offer incentives or provide resources to help in other ways – will provide strong encouragement to developers. Such has been the case with the famed complex of old mills in Holyoke, Massachusetts (e.g. the Open Square mill complex), where the public-private partnership, as articulated in the community's master plan, is now leading to positive change.¹²

Thus, the reuse or revitalization evaluation begins with the structure and site, which need to be assessed from both a planning as well as an engineering perspective. If the mill is in reasonably good shape from a structural standpoint, and environmental concerns do not appear too daunting, revitalization makes good sense from a land use perspective. If, in addition, the community desires the structure or complex to be revitalized, then we can move to the next focus area: market conditions.

Market Conditions

We need to examine market factors carefully in order to determine what uses of an old mill complex are sustainable, and at what cost. Old mills may lend themselves to several reuse options, including residential uses, commercial or retail uses, or industrial uses. We have seen facilities used as shopping centers (the Ann and Hope Department Store in Lonsdale, Rhode Island, and the Colony Shopping

¹¹ For pictures of the decay see Zimiles & Zimiles (1973, p. 228).

¹² 'Open Square' consists of 8 ½ acres and seven buildings in Holyoke's Canal District. It is a mixed use development. Its significance is that the buildings, primarily red brick, are quite striking. Holyoke is amongst the poorest communities in New England (see <http://www.opensquare.com/overview.php>. Accessed August 15, 2008).

Center in Keene, New Hampshire), as a university (University of New Hampshire at Manchester), as housing (Whittinsville, Massachusetts), and as museums, such as in Whitneyville and Collinsville, Connecticut. One of the most creative reuses was the conversion of the Sprague mill complex in North Adams, Massachusetts, into the popular Massachusetts Museum of Contemporary Art.¹³

As part of the market feasibility evaluation, we need to identify regional trends and concerns. Is there a demand for housing? Any particular type of housing, such as senior housing or assisted living units? Is there a need for incubator space? How about retail outlets? A study of market absorption, vacancy rates, and market saturation is in order. Reuse options will depend on a combination of market demand and the versatility of the structure and site. We cannot underscore the notion of versatility enough. Most of our old mills were constructed to 19th century standards dictated by the fire resistance codes of the fire insurance companies of the day.¹⁴ As a result, one will typically find open bays with load bearing poles along the entire length of the building. To create flexible space in these areas is no easy task. Moreover, if a company requires a typical production line process for its products, then it must be able to complete the process on one floor or its cost of production will be much higher. To the degree possible, the mill must adapt to the company's needs in an economic and efficient manner.

An analysis of market feasibility should include cost-benefit assessments for different reuse scenarios; assessment of development costs for the various scenarios coupled with market rates for sale or lease of finished space needs to be undertaken. Increasingly, this assessment must include the contribution of the public sector to making the project work. At times, the public-sector contribution will be a simple tax break; at others, it will mean grants for physical improvements, waivers of fees, relaxation of performance standards, or the granting of low-interest loans. At the time of writing, the authors are involved in a mill revitalization that, in order to make the project feasible, has required changes in zoning requirements, federal funds for external improvements, a state grant for a feasibility study, a tax-increment financing agreement that will relax property taxes for ten years, and a state-sponsored low-interest loan for a parking garage. Even with that support, we still have not reached the break-even point.

We have noted three factors that make the marketing of old mill sites difficult. First, mill complexes are far from modernistic spaces. Companies wanting to represent Madison Avenue qualities are unlikely to be attracted to such places. Second, they are frequently in areas where there is, at a minimum, a perception of crime. If workers and customers feel uncomfortable with the site, then the potential tenant will go elsewhere. Indeed, we have heard from many professionals, somewhat cynically, that three of the most significant needs for old mill sites are 'security, security, security' (Porter, 1995, pp. 61-78). Third, there is the problem of raising funds to prepare the space for the new tenant. Most old mills have little capital value (or even negative value). To use the buildings or land as collateral is often quite difficult: What banker, upon an initial analysis, would provide a loan to a derelict, 100-year-old building in a decaying part of town? There are a few, but they are the exception to the rule. Stated

¹³ This museum was built on a former super fund site. It is among the largest contemporary museums in the United States (see <http://www.massmoca>. Accessed August 20, 2008).

¹⁴ For more on this point see Wermiel (2000).

alternatively, it increasingly takes a public-private partnership to stimulate bank interest. Unfortunately, New England's states and regions do not have comprehensive pinpointed revitalization strategies designed to stimulate the regeneration of old mills. Each of the states has programs that the towns and developers can apply for but they are piecemeal. For example, the state of Rhode Island provides a 30 per cent tax credit that can be applied against improvement costs,¹⁵ Massachusetts has a program that is designed to provide funds for parking structures¹⁶ and Connecticut's phone utility will pay for fiber-optic connectivity.¹⁷ Also at the state level, one can typically find help in obtaining assistance concerning environmental issues, brownfield clean up and infrastructure assistance.

Nor is there much assistance designed to promote any relationship between growing industrial clusters and old mills. Those funds that are available to stimulate the growth of clusters are typically oriented to high technology companies (i.e. polymers, nanotechnology and the biotechnology) that have such strict building requirements that revitalized mills are typically far from optimal structures in which to work.

While New England lacks comprehensive revitalization and cluster linkage strategies, it has been fortunate to have the United States Department of the Interior's National Park Service as an active participant in the revitalization of old mills. The Park Service's work was extremely influential in stimulating the revitalization of Lowell through the creation of the Lowell Industrial National Park. This city is now a national model in tying industrial history and culture to economic revitalization.¹⁸ The Park Service was also extremely influential in stimulating the revitalization of the Blackstone Corridor between Worcester, Massachusetts and Providence, Rhode Island. The Valley, the home of America's industrial revolution and long a pocket of poverty, is now showing dramatic economic improvement (Gitell, 1992, pp. 65-92).

The Park Service has provided only limited funds for the small towns in their regional parks. On the other hand, they are experts in gaining assistance from other agencies, training local leaders and bringing a sense of positive spirit to local communities. They have been a wonderful asset. We regard the inability to provide comprehensive mill revitalization strategies and to create policies linking industrial cluster investments with mill regeneration as one of New England's greatest strategic weaknesses. We hope that the policies will change.

The Host Community

Successful revitalization efforts are anchored by effective public-private partnerships. Revitalizing old mills is far more complicated and difficult than building a new structure in a Greenfield site. The benefits the community receives from revitalization, however, are immense; they include financial advantages (returning property to the tax roles) and qualitative factors such as environmental clean-up, improved quality of life, perceptions of vitality, and sometimes fulfillment of a social need. The attitude

¹⁵ See State of Rhode Island Laws: Chapter 42-64.9: Mill Building and Revitalization Act, 1996.

¹⁶ Such funds were offered to the Clock Tower Place Mill in Maynard, Massachusetts through the Massachusetts Public Works for Economic Development Program, John Mullin, Interview with Joseph Mullin, Director of Public Affairs, August 18, 2008.

¹⁷ Interview with William Warner, City Planner, City of Middleton, Connecticut, September 15, 2006.

¹⁸ See, for example Commonwealth of Massachusetts (2006, pp. 1-3).

of the community toward a revitalization effort is critical. Is the community interested in revitalizing the mill complex? Is it ambivalent, or is it willing to play an aggressive proactive role in the revitalization efforts? We see ambivalence all too often. Given that the mill sites are unsightly and so observable from the road, there is often a desire to tear them down. And yet, once they are removed, local codes rarely will allow anything that matches their character as a replacement. Demolition often means simply creating open spaces. At the same time, given the frugal character of New Englanders, it is understandable that they are reluctant to contribute to a 'white elephant'.

We are currently involved in researching a case where this ambivalence has been evident for years. The Stanley Mill in Uxbridge, Massachusetts, was the oldest operating mill in Massachusetts when it was forced to close. While it is an integral part of the 'working museum' section of the Blackstone Valley Industrial Heritage Corridor, it is made of wood, is old and decayed, and complies with no modern codes. In 1998, a new owner purchased the building and all the liabilities that went with it. Among these liabilities was a back tax payment to the Town of Uxbridge of several hundred thousand dollars. The new owner has made it quite clear: he cannot revitalize the site unless the back taxes are forgiven. The town is in need of the revenue. Over the past decade, neither side has moved on the issue, and the building sits, continuing to rot away.¹⁹ Ambivalence, we fear, closes opportunities. To succeed, revitalization efforts often require commitment from the local leadership in the form of time, money, and personnel.

Is revitalizing the mill a priority in the community's master plan? This is a good indication of the community's feelings regarding the mill. Has the community identified a re-use scenario? Is it open to other ideas? How does the new use that the community is envisioning fit in with zoning and other local regulations? It is not uncommon for revitalization efforts to require changes in zoning and accommodations with regard to other local regulations.

The community's willingness to change zoning regulations provides a powerful indication of its desire to revitalize its mill. We saw this occur recently in Groton, Massachusetts, where the townspeople, through a master planning process and a communitywide workshop, analyzed the potential of the town's long-abandoned West Groton Mill. They concluded that the best uses for the structure were mixed housing and office space rather than manufacturing. The town's leadership then changed the zoning to reflect the new realities, developed a request-for-re-use proposal, and attracted a developer. Today, beautifully restored along the Nashua River, the old mill complex contains medical offices and apartments for senior citizens (Mullin, 2007).

Does the community have a long-range vision for the reuse of the mill? Too often, when a mill closes, community leaders are anxious to put it back into operation as fast as possible, and often workers want a similar employer to move into the facility. However, that might not be the best long-term option for the mill or the community. It is important for the community to see plant closings as an opportunity to think and plan carefully, with consideration for regional trends and market demands. It may make sense to put the mill back into temporary use quickly, to preserve the structure from vandalism or inclement

¹⁹ For more detail see Blackstone Valley Tourism Council (2003).

weather, but the use should be environmentally clean and nothing that would stand in the way of other future re-use options.

We also advise against seeking quick returns on investment. Very few mills will lend themselves to quick industrial re-use. Industrial and business uses require good access, infrastructure, services and other locational assets to make them viable. Where these locational advantages exist, we strongly urge communities that have the opportunity to redevelop mills to hold the line for industrial or business uses even through the return on investment is the longest. The payoffs and benefits to the community will be worth the wait.

We offer two illustrations of cases in which patient waiting was beneficial to the community and to the people involved. In one case, after a textile mill closed, the workers immediately organized to attract another such firm – despite the fact that textiles were leaving the region. The mayor argued that it was time to attract new industrial, growth-oriented firms and held his ground. He was successful. Nevertheless, the town's textile workers voted en masse against him in the next election, and he lost his office. In another case, in Gloucester, Massachusetts, one of America's premier fishing communities (fishing communities are similar to mill communities), the mayor wanted to diversify the community's economic base. When a large industrial property became available, he instructed his economic development coordinator to purchase the parcel and to sell it only to non-fishing companies, even if it took several years. The project was a tremendous success. Those suffering the pain of job loss, especially if they have only a narrow set of skills, will inevitably argue for a quick fix reflective of the past. Policy makers must consider the long term and be future oriented. This is no easy task.

The next factor local leaders must consider is the willingness of the community to be an active partner in the revitalization efforts. As previously noted, it is virtually impossible today to revitalize an old mill without a public-private partnership. Actions that the local government can take to help with revitalization include designing appropriate community master plans, making zoning changes, giving tax breaks, and providing tax increment financing. A governmental agency might also commit to renting space in the refurbished mill long term – such an agreement, in essence, provides a boost in equity for the owners. The key element here is the willingness to assist. At times, public-sector aid may be as simple as providing a means of fast-tracking the permitting process (given that time equals money), facilitating zoning changes (if the proposed use is non-conforming, then it will be more difficult to obtain bank financing) or creating informal community forums to air issues and concerns early in the development process. (it is far easier to discuss critical issues without the pressure of a time-controlled process or the strict controls of the law.)

The key in any public-sector action is community leadership. In our experience, in virtually every successful revitalization effort, a person or group has stepped forward. In Barre, Vermont, a leading granite extraction community, it was the mayor. His task was particularly difficult: he faced opposition from the local granite industry association, which felt threatened by the proposed revitalization

efforts.²⁰ In Brattleboro, Vermont, a group of businesspeople formed a corporation called 'Building a Better Brattleboro' to lead the charge, while in Holyoke, Gloucester, and Peabody (all in Massachusetts), the mayors stepped forward. In Springfield, Massachusetts, the leader in revitalization of the arsenal complex was the president of Springfield Technical Community College, the local community college (Kotval & Mullin, 1998, pp. 311-318). There is no predetermined leader; it simply must be someone who is committed to the cause.

We view this leadership element as being so critical that we will not begin our revitalization projects unless a leader has come forward or the community has indicated its willingness to develop a strong organization. In one western Massachusetts community, for example, we have not made much progress despite a year on the job because, despite our efforts, no leadership group has emerged. In the final analysis, when a community is willing to be flexible and work with the developers to assure a mutually beneficial project, the chances that the revitalization effort will be a success increase dramatically.

The Developer

Whether the developer is a private-sector company or a quasi-public development entity, successful revitalization requires capital, experience, and innovation. Communities will often opt to redevelop a site using a redevelopment authority such as an economic development corporation (EDC) or an economic development and industrial corporation (EDIC), as these entities allow for greater community control over the reuse scenario. If the redevelopment authority has the required capital and the expertise to carry out the revitalization effort, then it certainly is a win-win situation, as the community gets what it desires, the profits from the development stay within the community, and the redevelopment authority builds equity for other worthwhile projects.²¹

However, if the redevelopment authority lacks the expertise or capital, revitalization efforts will be incremental, predominantly market driven, and may not reach their full potential. If the community has done its homework, studied the physical condition of the mill and the market feasibility of various revitalization scenarios, and if it is committed to the revitalization efforts, then it may be wise for the EDC or EDIC to bring in a private developer with a solid reputation and experience in revitalization efforts. We have seen shining examples of such efforts across New England – for example, in northern Rhode Island, or in Springfield, Massachusetts, where the chamber of commerce serves as the EDIC. The Norwich, Connecticut, EDC was even successful in attracting a new minor league professional baseball franchise to town.

We offer one caveat here: the townspeople must know that an EDC is a semi-independent agency. Once it is formed and the voters approve its membership, charter, and operating budget, it is virtually freed from direct voter oversight. It is able to operate much like a private developer; it may buy or sell

²⁰ See 'The West Groton Mill Request for Proposals', Town of Groton, Massachusetts, July 5, 1996. Now called 'Rivercourt' the mill is full. John Mullin, Interview with Michelle Collette, Groton Town Planner, August 18, 2008.

²¹ For more on Community Development Corporations see Vidal & Keating (2004, pp. 125-137). Also see C. Steinbach, Community Development Corporations in U.S. Civil Society. <http://www.ids.ac.uk/ids/civsoc/final/usa/usa2.doc>

the old mill, invest in the mill, and provide loans to mill operators. It may hold land, obtain debt capital, and even pay for infrastructure improvements. In short, the community gains control over its destiny at the expense of direct democracy.

The development entity, like the community leadership, should be committed to building an effective public-private partnership. It must be flexible in its demands and have realistic expectations of the process and the project. The developer needs to understand and target the market, create a project that the community can be proud of, work in an ethical manner, and be flexible in terms of process and outcome. An innovative developer who understands and respects the history of the mill, the larger context, and the values of the community is more likely to develop a project that is in tune with those community values and will earn in return the host community's goodwill, commitment, and shared efforts.

The examples noted above, as well as our research activities have focused on the New England experience. We recognize that it may not tightly fit that of other places. Nonetheless, there are a set of generalized lessons that we can offer that may be valuable to those who are about to embark on mill revitalization projects. These are presented below.

(1) Not all mills are good candidates for reuse

It is imperative for the mill community to invest its resources and efforts in its best mills only. A town should not be afraid of demolishing buildings that are beyond salvage: They can be eyesores that detract from the community's well-being. We saw this in Gardner, Massachusetts, where the view from the major state highway once showed nothing but outmoded structures that proclaimed the failure of the town's industrial base. Once they were removed, revitalization of its other old mills escalated and they began to be filled with mixed uses. Please note: we are not saying the razing of the old buildings was the only factor; simply that it was one contributing factor.

(2) Whether a mill can be revitalized depends in large part on its location and structural integrity

We have found that mills located in areas where there is extensive industrial churning and a high quality of life, are particularly strong candidates for revitalization. Mills are excellent places for startup companies that are in need of small, inexpensive space and that offer opportunities for expansion. They are also prime spots when they are close to active research centers, laboratories, hospitals and universities. Such has been the experience of many mills in and around Cambridge, Massachusetts. These mills also typically provide housing options for singles, young couples and those wishing to move to condominiums that are desirous of living in high quality communities. The case of Guilford, Connecticut, and South Hadley, Massachusetts, are excellent examples of residential conversions.

(3) Mills that lend themselves to flexible re-use options are more likely to succeed

Freestanding structures that are small and self contained are optimal. We state this because most New England businesses are small, and the region attracts very few large firms from other regions

and even fewer that would be attracted to old mill spaces. Thus, large, centrally heated factories, such as those found in Lawrence, are apt to fill slowly, while the small silk mill in Northampton, Massachusetts, or the many buildings in Peace Dale, Rhode Island, are apt to fill more rapidly. The one caveat we offer is that small companies can grow large, and when they outgrow their facilities, the developers can lose prime tenants. Such was the case quite recently when the owners of Chicopee's Ames mill lost their prime tenant to a nearby industrial park.

(4) Revitalization efforts must take regional trends into account and should pay particular attention to market demands and sustainability factors

New England's cities and towns are quite small in land area in comparison with those of the rest of the nation. Mill communities must place themselves in the context of their regions. The marketing thrust should be oriented toward existing and emerging industrial clusters. In New England, there are, among others, existing and emerging clusters for biotechnology (Greater Worcester), paper (Berkshire County), tools and medical instruments (Connecticut River Valley), jewelry (Greater Providence) and biotechnology (Greater Boston). We are often asked how one decides the size of a regional cluster. There is no one answer. However, we believe that the time that it takes to commute between home and work place is an important determinant. We also believe that the ability to interact in person in social and professional contexts is critical.

In Southern New England, we have used a 30 minute (30 mile) rule of thumb for defining the edges of a regional cluster. We have no hard evidence for our rule except to note that those companies desiring to have cluster relationships typically look for space within 30 minutes of the hub of a cluster. In fact, in Worcester, Massachusetts, there is a biotech cluster that is contracting in size due to the fact that its companies want to be close to the hub of the region's biotech cluster in Cambridge: Worcester is 50 minutes from Cambridge and just a bit too far.

(5) Revitalization efforts work best when they accord with the local and regional master plans

Simply stated, master plans enable a community to reflect on its values, to have a sense of direction, and come to grips with its fiscal and social realities. Master plans also show potential developers what is important to the community and suggest how much assistance the developers can expect from it.

(6) Revitalization efforts require effective public-private partnerships

Unless communities are prepared to help, revitalization efforts will flounder. The help can be process oriented or fiscally directed, but in either case, the developer and the community must forge a very close relationship. For that reason, it is imperative that the town has a thorough understanding of the proposed developer's track record and financial condition.

(7) Revitalization efforts must build on community values and desires

Not everyone considers old mills to be community assets. We once heard an old mill hand ask, 'Why do you want to save the darn things? They only represent industrial slavery!' When residential

areas are right up against the mill, townspeople are often very anxious over proposed uses, environmental standards (noise, smell, vibration, air pollution), and traffic. It is essential that the citizenry be informed of proposed uses as early as possible.

Furthermore, communities should exhibit strong leadership and a proactive commitment to revitalization efforts. We are great believers in communities preparing brochures that outline exactly what they intend to offer in terms of assistance well ahead of time. By so doing, all parties have a clear understanding of what to expect. The work of Whitinsville, Massachusetts has been exemplary in this regard.

(8) Successful revitalization efforts require innovation, expertise, and financial acumen

These qualities will manifest themselves in solutions such as relaxation of taxes, tax relief agreements, zoning revisions, successful acquisition of grants, and 'angels' to help the developer through the process. Such approaches have been effective in towns such as Claremont, New Hampshire, and Killingly, Connecticut.

It is not enough simply to have 'booster' organizations. The community must also have one office or individual to serve as a point of contact. The mayor of Westfield, Massachusetts, asked us once why a company chose to locate its facilities in a nearby city rather than in Westfield. The answer was easy: Westfield had five development organizations all sending different messages to the company – no one was in charge. The coordinating office (or individual) must understand development financing, grants, and development process and must have excellent relationships with banks and regional and state development organizations.

(9) Adaptive reuse is more than historic preservation; it is bringing a new use or modern function to the building

Some communities fear gaining federal or state historical designations for their mills because such designations result in strict controls over facades and reconstruction, which, the community fears, will make revitalization prohibitively time consuming (because of review processes) or expensive (because of the need to meet historical certification standards). We understand this concern and urge communities to consider carefully between the need to protect their heritage and the need to create functional spaces. Not all mill buildings lend themselves to historic preservation designation.

(10) Adaptive re-use is a complex process that takes time and understanding

We urge our communities to think long term, to plan carefully, to gain the support of professionals at the regional and state levels, and above all, to develop to the highest possible standards. Incremental, unplanned, quick-fix, and short-term efforts may obstruct revitalization efforts that could take advantage of the site's full potential.

A Concluding Note

We note that many of the issues presented in this paper are being discussed at local, regional and state governmental levels. As a result, we expect that many will be resolved. For example, the fact that so many mills fail to meet building code standards has contributed substantially to a lack of interest in revitalization. Today, there are now discussions concerning whether it is possible to create a separate building code for these structures. Similar ongoing discussions concern the creation of mill reuse overlay districts in local zoning, the expansion of investment tax credits for mills that meet critical community needs and that apply 'green construction' techniques. Moreover, considerable discussion is taking place concerning means and methods to help small communities prepare grant applications and to process development proposals quickly. It is clear that New England's governments are increasingly determined to improve the prospects for mill revitalization.

The revitalization of mills is not for the faint of heart. Seemingly, there are potential 'deal-killing' impacts at every stage of the development process beginning with brownfield issues, structural integrity questions, zoning and the nature of a public-private partnership and on dealing with long-term finance problems and finding tenants. But the mills are worth it. In a physical sense, they are icons that help to shape the community. In a social sense, they often represented the single greatest agent for unifying a community (for better or worse!). In an historic sense, they often were the reason for the community's existence. In an environmental sense, they offer a feasible reason to clean up a brownfield site and restore the adjacent stream such that the community no longer has to live with a decayed building. In terms of smart growth, they help to place activities where infrastructure is already in place rather than sprawling ever outward. In an economic sense, they enable us to provide spaces for a wide range of uses including small traditional firms, start-up companies and service firms. And finally, they are flexible: the record shows that these facilities can be adapted for residential, commercial, industrial and institutional uses. There is vibrant life in these old bones!

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