

ADAPTIVE RE-USE IN A NEW ENGLAND

Mill District: Factors Contributing to Success in Manchester, NH

Scott Hastings
University of Southern Maine

Nathaniel Trumbull
University of Connecticut/Avery Point

ABSTRACT

New England once relied heavily on its industrial sector for its economic prosperity. When large industries moved out of the region, they not only left behind empty mill buildings but also left many cities and towns without an economic base. The restoration and adaptive reuse of those buildings can help those cities and towns to regain some of their former prosperity. To understand better the processes of adaptive re-use of textile mill buildings, the city of Manchester, New Hampshire was examined. At one time Manchester was home to the largest textile company in the world, the Amoskeag Manufacturing Company. When the Amoskeag Manufacturing Company went bankrupt in 1936 it economically devastated Manchester and left the city with a huge complex of abandoned mill buildings. These buildings stood mostly vacant for half a century, but have recently been restored and through adaptive re-use now support new businesses in the city. This remarkable transition of the mill district of Manchester represents an opportunity to examine the processes and elements by which an aging industrial area can be revitalized. In order to identify the processes that led to the redevelopment of Manchester's mills, the actions undertaken by both public and private interests in the area over time were examined through the use of city records and personal interviews. Study of these actions illuminate four important factors that led to major redevelopment and successful adaptive re-use in the Manchester Mill District: infrastructure improvement, mixed use zoning, significant private investment and improvement of the perceived image of the area. *Keywords: urban revitalization, adaptive re-use, restoration, mills, New England.*

Introduction: Rehabilitation and Adaptive Re-use

Run-down or abandoned properties place significant drains on local economies. They can foster crime, fear, pollution and continued property abandonment (Schilling 2002). It is a well-documented process that a single abandoned building in an area can contribute to the later abandonment of neighboring buildings. Abandoned buildings can also instill fear, leaving local

residents and visitors afraid to walk through or enter the area. The combined effect of all of these impacts is a drastic reduction in property values in neighborhoods containing abandoned buildings. While in other circumstances falling property values would eventually attract new interest, the longer buildings remain abandoned, the more deteriorated they become and the more expensive it is to rehabilitate them (Ball 1999). Rehabilitation is the restoring and retrofitting of old buildings and property to allow for continued use in the modern era. Adaptive re-use is the rehabilitation of a building or property with the intention of using it for a different purpose than it was originally developed (Cantell 2005).

Both rehabilitation and adaptive re-use can also give a city an avenue for growth when outward expansion and undeveloped land has been exhausted. While the neighborhoods containing abandoned buildings are generally depressed, this is often because of the abandoned buildings themselves rather than poor location. In fact underused industrial districts are often found near the center of cities and so are already provided with access to infrastructures and markets that probably would not be as readily available in undeveloped areas. The city in turn benefits from maintaining a local employment base, provided the buildings are not made into residential units (Mullin, Armstrong, and Kavanagh 1988). The adaptive re-use of mills and other large industrial buildings is of particular interest. Their large open spaces lend themselves to many potential uses. They can be updated for further industrial use or adapted to serve as museums, residential units, commercial and retail space or offices. A combination of these uses can greatly stimulate economic growth (Villa 2007). Specifically, mills are typically located in low income areas of a city and their adaptive re-use can often make significant strides in bringing such areas much needed facilities.

Also important to adaptive re-use are public perceptions of place and placelessness. Relph states that place is defined "by the focusing of experiences and intentions onto particular settings" (Relph 1976, 141). Sense of place is the connection that people feel within certain locations. In a large, cohesive industrial district, such as the Manchester mills, entire generations of local citizens can identify with the district as an important part of their lives and heritages. (Hareven and Langenbach 1978 and 1981). This association with workplace and production can give a city a unifying identity. Lowell, Massachusetts, and Manchester, New Hampshire, are still called "mill towns" despite not having had operating mills in decades. Placelessness, on the other hand, is the lack or removal of distinct cultural and historical connections, to the point where locations become interchangeable (Relph 1976). By retaining old buildings that already have developed a connection with the population a city can work to maintain its unique sense of place. Adaptive re-use also allows the city to include its history in the creation of new identities, and to build its future reputation on the foundation of its past.

Industrial buildings in particular are often important in local history and thus contribute to the sense of place of the city (Cantell 2005; Hareven and Langenbach 1981). In many areas they are the oldest buildings still standing and are associated with the livelihood of whole generations of residents (Hareven and Langenbach 1981). The goods produced in these facilities are intertwined with the city's identity and civic pride. Through adaptive re-use of these buildings, a city can experience economic growth and development while maintaining or even reinforcing its cultural identity and unique sense of place. In these modern environmentally conscious times,

some cities seek to separate themselves from their industrial past and any legacy of pollution that may be associated with it (LeGates and Stout 1999). By rehabilitating rather than razing the industrial buildings a city can embrace its history and address the environmental problems that history created. Sharon Zukin in her pioneering work on cultural context and place in New York City argues that with the widespread loss of urban manufacturing industries, culture has become increasingly the business, and overwhelming economic determinant, of all post-industrial cities (Zukin 1995). Indeed, many of the details in Zukin's monograph on the emergence of lofts in Manhattan (Zukin 1982) and their cultural context parallel key issues and aspects of the rehabilitation and adaptive re-use of the former textile mills of Manchester.

That old industrial districts have strong, often negative, reputations is well-known (LeGates and Stout 1999). The city of Manchester has chosen to celebrate the era of industry that created the mills through museums and historical displays. Many critics lamented the initial loss of the canals and buildings in the city's Urban Renewal Project (URP), claiming that there was irreparable damage done to the sense of place of the mill district. Hareven and Langenbach (1978) led this faction in the literature, using the Manchester mills as a prime example of historic architecture and planning destroyed by modern trends. Langenbach in particular was a vocal critic of the URP and was specifically rebuked in the URP summary report. What Langenbach failed to take into account was the ever-evolving nature of place. As has been widely argued among cultural geographers, new representation of the industrial landscape can legitimate an emerging order by erasing many of the facts upon which it was built (Mitchell 2000). That emerging economy of the post-industrial landscape can, through new representation and ideology, be quite different from the original industrial landscape usage. While Manchester lost some of the iconic parts of its mid to late 1800s mill architecture and the impressive canal system that went with them, if these things had not been removed the area would almost certainly have continued to decay. It would not take long for the image of a functional and cohesive manufacturing district to be replaced. The course taken by the city allowed it to retain a large portion of the historical identity of the district while paving the way to its eventual new life as a modern area of varied employment.

The large size of industrial buildings is also attractive to use as educational and recreational areas. Scholars who have observed the emergence of a new "creative class" have posited that talent migrates primarily to settings possessing high degrees of social openness, diversity, and creativity (Florida 2005). Colleges also often make use of empty industrial buildings, which allows them to acquire space in densely developed urban areas. The re-invention of the industrial district of Manchester as an educational setting has been critical in appealing to new talent. For example the University of New Hampshire is one of three colleges that have opened branches in the Manchester mills. The opening of museums is another manifestation of efforts among community leaders to cater to that creative class. This is particularly pertinent in the case of mills as they are an integral part of the area's history and locating a museum in one of the mill buildings builds upon and enhances a sense of that history. Several New England towns have located history museums in their mills, including the American Textile Museum in Lowell, Massachusetts, and the Millyard Museum in Manchester, New Hampshire. Manchester also has a children's science museum, the SEE Science Center, located in a mill building.

There are a number of hindrances and obstacles, mostly financial, to adaptive re-use. Many industrial sites are contaminated with various hazardous pollutants that must be cleaned up before the site can be reused (Gorman 2003; Cantell 2005). This process can be very expensive and often lowers the enthusiasm of investors to initiate a rehabilitation project (Gorman 2003). In some cases contaminants can prevent the rehabilitation of a site. If the cost of cleaning a building to a safe operating environment is too high, then the building has to be torn down. In some cases it is impossible to remove the contaminants without razing the building. In areas known to be highly contaminated it is often necessary for some public assistance to be pledged before developers will be willing to invest in the property (Bell, Genske, and Bell 2000).

Rehabilitation of even a clean site is not an inexpensive process, particularly if the building is being converted to a new purpose in adaptive re-use. In fact it can be more expensive than building a new facility on undeveloped land if the building is in an advanced stage of decay. Old, abandoned buildings need to be repaired and cleaned. They also need to be made to meet modern safety and building codes (Mullin, Armstrong, and Kavanagh 1988). In adapting large industrial buildings to suit the needs of smaller tenants, major structural changes may be needed, including gutting the interior and rebuilding it. Many of the benefits of rehabilitation are felt more by the community rather than by the property owners or are long term investments in the neighborhood as a whole. Being the first to invest in a depressed area, and not knowing if others will follow and collectively improve it, involves huge risk. This risk deters many potential developers of abandoned properties.

History of the Manchester Mills

The city of Manchester, New Hampshire was largely planned and built by the Amoskeag Manufacturing Company (AMC), starting in 1838. The AMC built and owned a large mill complex along the Merrimack River, complete with two canals and boarding houses for the mill workers. The mills were at first entirely textile oriented but soon expanded to include machinery manufacture. The AMC became the largest textile plant in the world by the early twentieth century, with a peak employment of 17,000 workers (Hareven and Langenbach 1978). After World War I the AMC started losing business, both to a general move of manufacturing to the south and a weakening market for one of its major specializations, gingham cloth (O'Donnell 1994). In 1935 AMC halted operation of all of its remaining mill activities and in 1936 the company ceased to exist.

The bankruptcy of the AMC dealt a serious blow to the Manchester economy. A large part of the city's workforce had been employed by the AMC. The town was not completely devastated though as a number of shoe companies that built mills in the early 1900s were still in operation. In order to make sure that the AMC's mills were used in a way that was best for Manchester, a group of prominent locals banded together to buy the mills at auction and endeavored to fill them with industries as quickly as possible. At this time the mills employed about 8,000 people, or approximately half of the amount that AMC had employed when it closed. This continued until the start of World War II, when textile production in the mills for uniforms, tents and

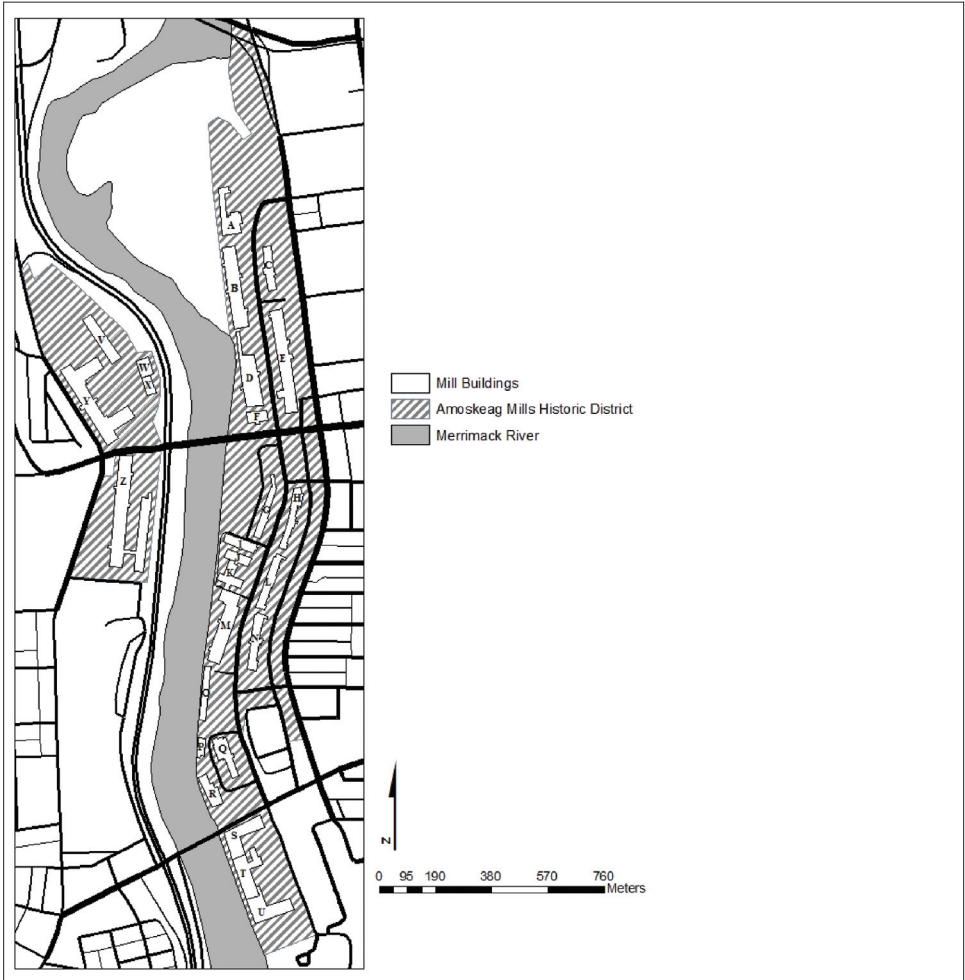


Figure 1. A map of the mill district as it appears today. Letters correspond with those in Table 1. Street and hydrography data courtesy of NH GRANIT.

parachutes resulted in a temporary rebound. In 1948 the mills collectively employed around 15,000 people. Yet when the war ended, the textile companies were again fighting a losing battle (O'Donnell 1994).

This study is primarily concerned with the nineteenth-century mills located within the city of Manchester. Most of these buildings are found within the current Amoskeag Mills Historic District. The main portion of this area is bounded on the west by the Merrimack River, on the

Map Letter	Owner/Manager	Sq. Footage	Date Rehabilitated
A	PSNH	77,000	2001
B	BS	335,556	2004
C	CA	—	—
D	ODC	436,211	—
E	JCM	204,706	1983
F	CA	—	—
G	UNHM	69,302	1985
H	BH	166,137	—
I	TC	75,616	1982
J	TC	65,125	1984
K	TC	87,038	—
L	CSM	73,101	—
M	BS	43,876	1996 (2007)
N	TC	194,229	—
O	TC	74,750	2000
P	TC	33,655	2000
Q	TC	66,650	1986
R	TC	73,029	2009
S	MMR	195,589	—
T	33sc	173,536	—
U	LPI	225,518	—
V	BS	42,266	—
W	BS	84,394	2006
X	BS	68,418	2006
Y	CCC	592,060	—
Z	BS	555,774	2000 (2004 and 2009)

Key: PSNH – PSNH – Public Service of New Hampshire, a utility company; BS – Brady Sullivan Properties; ODC – One Dow Court Inc; JCM – JCM Management Co.; BH– Bejoc Holdings; TC – Technology Center; CSM – CSM LLC; MMR – Manchester Millyard Reality; 33sc – 33 South Commercial Street LLC; LPI – Langer Place Inc; CCC – Carol Cable Co.; CA - Condo Association.

Table 1. A list of the mill buildings with their total floor space and the years in which they underwent major rehabilitations, if known. If multiple years are given, the building underwent multiple significant rehabilitations. Square footage data is from the City of Manchester or the property owning entity.

east by Canal Street, on the north by Amoskeag Street and extends to the southern end of South State Street. A smaller area is on the western bank of the Merrimack River and it is bounded on the east by McGregor Street and extends between Foundry Street to the south and the Eddy Road on-ramp for Interstate 293-South in the north (Figure 1 and Table 1).

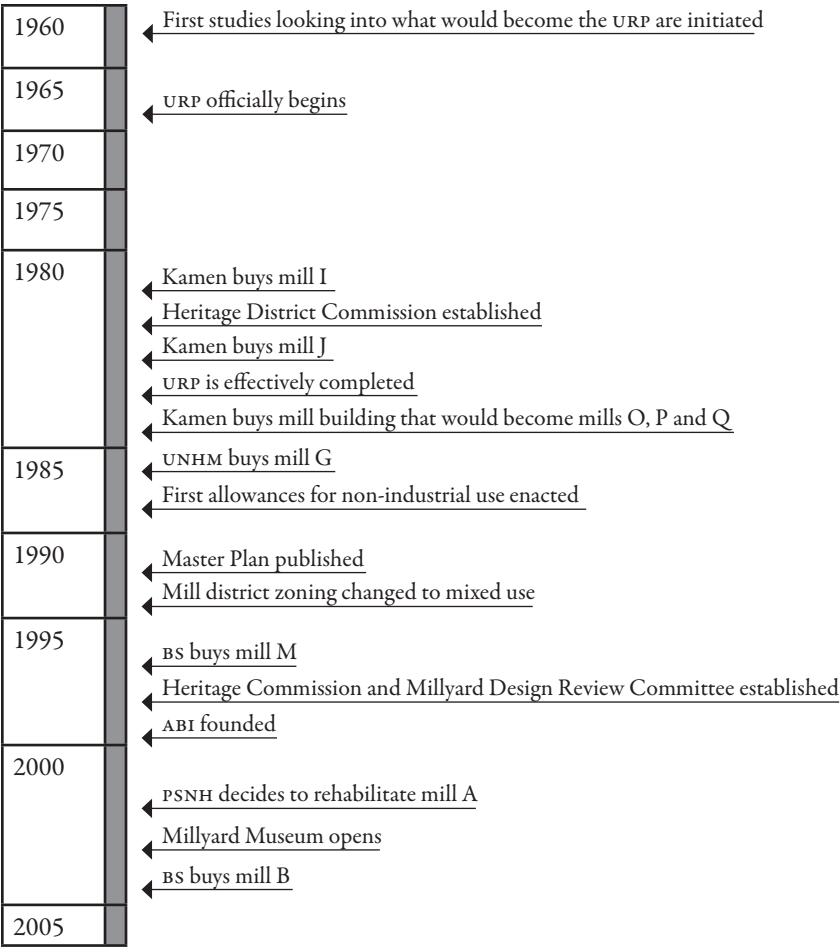
The subject of this study is the period beginning in the 1960s and continuing to the present day. The research relied to a great extent on reports and studies published and commissioned by the city over that time period. It also made wide use of newspaper articles from the locally based Union Leader. In addition, a series of six, 60 to 120 minute, structured in-person interviews were also conducted with representatives of the major stakeholders in the area in summer 2009 (Table 2).

Individual Interviewed	Position with respect to the mill district
Don Clark	Director of Property Management and Development for Technology Center
Julie Gustafson	Executive Director of The Amoskeag Business Incubator
Mick Hnath	Project Manager for Public Service of New Hampshire
Robert Mackenzie	Director of the Manchester Planning Department (1991 – 2008)
Richard Pizzi	Vice President of Lavallee Brensinger Architects
Timothy Sheldon	Director of Design for Brady Sullivan Properties

Table 2. Interviewed for this study.

Redevelopment of the Mill District

By the early 1960s the Manchester's mill district had become woefully outdated and undergone significant decay. The complex predated automobiles and the narrow access roads designed to accommodate pedestrian workers, railroad deliveries and horse-drawn material transport were inadequate for modern transportation. Roads and train tracks shared rights of way in many areas and loading docks were directly on the street. On top of this the canals restricted automobile access to three or four small bridges, a combination of factors which led to crippling congestion. The sheer amount of land area in the district covered by buildings combined with the ever present congestion made for an extreme fire hazard with many areas being unreachable by fire crews. The canals, not used for power since the early 1900s, were generally stagnant and received large amounts of the raw sewage from the town's outdated sewage system, making them an active threat to public health (Manchester Housing Authority 1982). In 1969 a newspaper reporter described them as "open sewers upon whose sickly, green, scummy and stinking surface there normally floats a considerable volume of human excrement and other corruption." (McQuaid



Key: URP – Urban Renewal Project; BS – Brady Sullivan Properties; UNHM – University of New Hampshire at Manchester; ABI – Amoskeag Business Incubator; PSNH – Public Service of New Hampshire

Figure 2. Time Line of Events

1969). Both public and private property in the area was under maintained. The primary incentive for businesses to locate in the millyard at the time was the extremely low rents. Subsequently property owners were unlikely to undertake any repairs or maintenance that might increase those rents.

At this point the city decided that it must do something to alleviate this situation. Three pos-

sibilities were explored: 1) relying on private interests to address the issue themselves, 2) razing the entire district to the ground and 3) a “selective demolition and infrastructure improvement” approach (Manchester Housing Authority 1982). Ultimately the third option was selected and in 1965 the city applied for federal urban renewal funding through the General Neighborhood Renewal Plan, a program that the city had been involved in since 1961. In 1966, with the federal government committed to paying two thirds of the project’s total budget over its twenty year duration, the millyard Urban Renewal Project (URP) officially began with the publication of the Amoskeag Millyard Project Urban Renewal Plan by the Manchester Housing Authority, who was directly in charge of the project.

Ultimately the URP outlined a number of goals which fell into three primary courses of action: removal of undesirable buildings and infrastructure, rehabilitation of remaining properties and improvement of infrastructure. The project largely progressed as originally designed. The canals were filled in and a portion of the buildings were demolished to make way for a modern road network. Only one building was found to constitute a brownfield at the time and it was subsequently demolished and the site cleaned.

As the URP neared completion the millyard began to attract major private investment and to slowly move away from its industrial roots. In 1981 the Public Service of New Hampshire (PSNH) ceased operating the coal fired steam power plant (Mill A) that it had purchased in 1936. The first two major private investors in the site were Dean Kamen and John Madden. Dean Kamen, already a successful inventor/entrepreneur, bought one of the smaller mill buildings (Mill I) in 1981 with the intention of moving his research and design company, DEKA, into it and leasing out the remaining space. The next year he bought the neighboring building, Mill J, and set up Technology Center (TC) to manage the properties. While not yet filled with other tenants, the first building was said to be “renovated to exceptionally high standards” in Applied Economic Research’s 1983 report (Applied Economic Research 1983). John Madden, a “local investor” (Applied Economic Research, 1983), bought a large mill building (Mill E) in 1982. With the help of federal money in the form of a locally distributed Urban Development Action Grant, he carried out an extensive renovation for multi-tenant, light industrial use. In 1984 Dean Kamen bought a third, much larger (270,000 square foot) mill building. He explained that his goal in investing so heavily in the mill district was to “bring the area to the point where it has a large enough high tech base that it starts developing itself” (Howard 1984). In 1986 the city responded to these new interests by expanding the zoning to allow non-industrial use in the area, allowing non-customer based commercial interests, such as offices.

Starting in the late 1980s and continuing into the early 1990s Manchester, along with much of the rest of the country, went through a major recession. A number of the largest banks in New Hampshire at the time were headquartered in Manchester and four of them were closed by the Federal Deposit Insurance Corporation on the same day in 1989 (Robert Mackenzie, Director of the Manchester Planning Department (1991 – 2008), 2009, personal communication). Property owners leased out their buildings as best they could but no major rehabilitations or infrastructure work was undertaken during this time period. One property owner wished to tear his mill building (Mill N) down. In order to prevent this, the city purchased the property and granted it to Dean Kamen with the understanding that it would be used for non-profit use



Figure 3. A view across Commercial Street. Mill L is directly across the street with Mill N in the background.



Figure 4. View of Commercial Street from the North. Mill B is in the foreground with Mill D in the background.

(Robert Mackenzie, Director of the Manchester Planning Department (1991 – 2008), 2009, personal communication). Dean Kamen was at the time looking to create a non-profit science/technology based high school competition called US FIRST and had also a few years prior donated space in one of his mill buildings to a non-profit children's museum. The donated building now houses US FIRST's offices, the aforementioned children's museum and a Millyard Museum dedicated to local history, among other non-profit tenants.

As time wore on local citizens decided to take an active role in attempting to revitalize the city and a group of around 200 people formed the Citizens Planning Revitalization Committee or CPR. This committee, working with the city's planning department, commissioned LDR

International, an internationally recognized planning consultant, to prepare a development plan for the whole city, focusing on how to revitalize the downtown and mill district areas. Among many larger recommendations, such as building a civic center near downtown, the plan strongly recommended rezoning the mill district for lenient mixed-use, allowing all commercial and residential uses along with the traditional light industry and manufacturing already there. It also recommended that the city create more green space in the district and attempt to make the district more pedestrian friendly by improving sidewalks and the linkages across Canal Street. Shortly after this study was published the city designated the mill district as a local historic district within the city and rezoned the area for



Figure 5. Inside what used to be the turbine hall of PSNH's building (Mill A). This large service crane was left in the building as decoration when the building became office space.

full mixed use. The idea of registering it on the National Register of Historic Places was looked into and an application was even filled out but it was never submitted. It was felt that the local designation was sufficient and there were some worries from the property owners that the national listing would come with too many restrictions on future rehabilitation work.

At this point a small number of other long-term stakeholders entered the area. In 1996 the real estate developer Brady Sullivan Properties bought the Waumbec mill building (Mill M), one of the largest of Manchester's mills at over 423,800 square feet. They then did minor rehabilitation, fixing major problems and upgrading the infrastructure before renting it out as inexpensive office space (Mowry 2003). 1996 was also the year in which the Amoskeag Business Incubator (ABI) was founded. The ABI provides space and support services for small businesses. The University of Southern New Hampshire owned and managed the incubator and the city provided funding, including federal grants through the United States Department of Housing and Urban Development. Much of this original funding went towards rehabilitating the space that the incubator would occupy, including the installation of an elevator. In about a year and a half the incubator had been filled to its full capacity (Julie Gustafson, Executive Director of the Amoskeag Business Incubator, 2009, personal communication).

As the millyard moved into the new century, the pace of adaptive re-use began to accelerate. In 2000 Public Service of New Hampshire decided to rehabilitate their former power plant, into their new corporate offices. This was an ambitious project involving environmental cleanup and the insertion of a second floor into the former turbine hall. Also in 2000, Dean Kamen's Technology Center oversaw the rehabilitation, into high end office space, of two of their mill buildings (Mills O and P), which had not previously been completely rehabilitated. The Manchester Historical Association opened the Mill Museum, a museum dedicated to local history in one of the mill buildings in 2001. In 2002 Brady Sullivan bought their second mill property, another very large building (Mill E). Two years later they would conduct an extensive rehabilitation of this space into high end office space. While during this time period the city has not made any large investments in the mill district itself, the city has undertaken a number of projects aimed at improving the image of the downtown area as a whole. In 2001 the city constructed a large civic center within walking distance of the southern parts of the mill district. The civic center hosts concerts, a minor league hockey team, an arena football team and a number of other events. In 2005 a baseball stadium was built immediately to the south of the mill district. This stadium is the home of a minor league baseball team. These two facilities have helped to change the image of downtown Manchester to a more active, lively "destination" (Robert Mackenzie, Director of the Manchester Planning Department (1991 – 2008), 2009; Richard Pizzi, Vice President of Lavallee Brensinger Architects, 2009, personal communication).

Factors Contributing to the Adaptive Re-use of the Manchester Mills

The unanimous consensus of those interviewed during the course of this study was that Manchester's mill district is currently a highly successful area. It was variously described as "bustling" and "an economic engine" as well as "enormously," "amazingly," and "very" successful by interviewees. The district as a whole is reported to be as close to fully occupied as it could be,

with estimates putting it at about ninety percent occupied (Don Clark, Director of Property Management and Development for Technology Center; Robert Mackenzie, Director of the Manchester Planning Department (1991 – 2008), 2009; Timothy Sheldon, Director of Design for Brady Sullivan Properties, 2009, personal communication). Much of this space is filled with high end offices, research and design firms and universities. This was not true as recently as ten years ago. The mill district at that time was described as a “ghost town,” most of the buildings were far from full to capacity and much of the space in use was underutilized as storage space. Homeless people lived in the vacant and poorly maintained buildings (Don Clark, Director of Property Management and Development for Technology Center; Mick Hnath, Project Manager for Public Service of New Hampshire, 2009, personal communication). The transition from this empty state to the current level of local success can be primarily attributed to four main factors, some dating as far back as the Urban Renewal Project. Those factors are improved public infrastructure, mixed use zoning, significant private investment, and improvement to the image of the district. The four factors emerged from the interviews as what the respondents themselves believed to be the main factors.

Infrastructure Improvements

The city’s most visible actions toward improving the district have been in the area of improving infrastructure. The URP accounts for most of these actions. This project addressed problems with the district that could not have been addressed by individual land owners and removed many of the impediments to modern development that existed in the district at the time. The URP project, in filling the canals, untangling the railway right of way and creating a modern street system complete with parking, was a necessary part of allowing the district to continue to function. Without this infrastructure upgrade none of the following development could have occurred. On top of this, the URP required that property owners invest money in their mill properties in order to bring them up to a certain level of functionality. While this requirement was not particularly strict it did help keep the majority of the buildings at a certain level of structural integrity such that when the area’s fortunes did look up they were still able to be rehabilitated. Not a single building has had to be demolished since the conclusion of the URP. That said the last of the buildings to undergo major rehabilitation was nearing the point of decay in which structural integrity was at risk before its current rehabilitation project was begun.

Since the URP the city has done much less with the infrastructure in the area. The city improved the sidewalks and attempted to address the parking problem. While they have not built any parking structures they did lift the original on street parking ban and have since restriped the road for angled parking, opening up a large number of parking spaces. The city has also made infrastructure improvements outside of the mill district that have strongly benefited the mills. They have redone the nearby highway interchanges as well as the bridges crossing the river, greatly increasing access to the millyard. Further the city has put a lot of money and effort into the regional airport located within the city limits. Most notably it is the regional hub for Southwest Airlines, which has favored the Manchester airport over Boston. Combined, these efforts to make the mill district accessible were cited as one of its most attractive qualities to

new and larger business interests (Julie Gustafson, Executive Director of the Amoskeag Business Incubator, 2009 ; Robert Mackenzie, Director of the Manchester Planning Department (1991 – 2008), 2009, personal communication).

Mixed Use Zoning

Another important factor in encouraging growth in the mill district was the introduction of zoning for mixed use. While the mill buildings were created for and by large manufacturing interests, they are not easily adapted for modern manufacturing. The mills' floors cannot support forklifts used to transport goods on a factory floor. The interior support columns, while specifically built around the textile machinery, do not provide sufficiently wide spaces for installing modern mechanized manufacturing equipment. Further, while the buildings have large floor plans they are still primarily vertical as opposed to the sprawling, suburban, one story manufacturing plants that are favored today (Don Clark, Director of Property Management and Development for Technology Center; Robert Mackenzie, Director of the Manchester Planning Department (1991 – 2008), 2009; Timothy Sheldon, Director of Design for Brady Sullivan Properties, 2009, personal communication). The city's first experiment in allowing non-industrial land uses opened the door of opportunity for the district: offices were created, the University of New Hampshire at Manchester moved in and the first restaurants opened. All of these resulted in successful adaptive re-use of the existing buildings and new employment opportunities. They served as an example for what could happen on a wide scale in the area. When the city went on to rezone the area as mixed-use, business interest in the area rose dramatically. Allowing a wide variety of potential uses reduced some of the risk associated with the rehabilitation of the old buildings. The rezoning allowed property owners to follow market forces, an approach widely cited as one of the foundations for the success of adaptive re-use in the district (Don Clark, Director of Property Management and Development for Technology Center; Timothy Sheldon, Director of Design for Brady Sullivan Properties, 2009, personal communication).

Significant Private Investment

One of the most important factors in the redevelopment of Manchester's mills has been the active investment of private capital. Very little federal or city money has gone into the rehabilitation of the mill properties. During the URP, property owners were reported to have spent \$15-20 million dollars to bring the buildings up to required standards (McQuillen 1979). This private investment is comparable in size to the \$23.8 million spent on the entire district by the URP. One of the first mill rehabilitations, Mill E owned by John Madden, was assisted by a federal grant. In the mid 1980s the city distributed some industrial development bonds, with \$2.1 million going to the University of New Hampshire at Manchester's new campus and \$2.5 million going to a private investor. Again these amounts pale in comparison to the money invested by private interests. Dean Kamen spent over \$4 million in two years to rehabilitate his first two smaller buildings (Mills I and J). The only large investment the city put into a specific building

was when they bought and then donated Mill N to Dean Kamen for non-profit use. Since that time the only government inflow of money towards the rehabilitation of mill space has been through the Amoskeag Business Incubator.

In recent years the amount of private investment has increased dramatically. Brady Sullivan Properties invested in a \$15 million rehabilitation of one of their mill buildings (Mill E). This amount does not include the money put in by tenants to overhaul their individual sections. A large tenant in one of the Brady Sullivan mills spent \$3.5 million renovating its space (Mowry 2003). Currently Brady Sullivan is in the midst of a reported \$17 million dollar rehabilitation project (Mill Z) on the west side of the river that would incorporate both residential and commercial uses (Timothy Sheldon, Director of Design for Brady Sullivan Properties, 2009, personal communication). Private investors in the area often do not take advantage of some of the potential tax breaks currently offered by the government because of the strings that would come with them. The Technology Center has not used any government tax breaks, grants or other monetary assistance in the rehabilitation or general management of their buildings (Don Clark, Director of Property Management and Development for Technology Center, 2009, personal communication). The entire mill district is eligible to be listed on the National Register of Historic Places which would make the property eligible for a number of tax breaks and federal grants. However not a single property owner has used this program. The restrictions it would place on further rehabilitation and development are not seen to be worth the money saved, which in the case of PSNH would have been approximately \$3.5 million (Mick Hnath, Project Manager for Public Service of New Hampshire, 2009, personal communication).



Figure 6. A view from Arms Park looking across the Merrimack River at Mill Z.

Importance of Image and Perception

A critical part of the mill district's appeal is the image and sense of place it evokes. The traditional red brick and hard wood construction of the Manchester mills speak of the history of the buildings and provides a comforting and functional environment (Richard Pizzi, Vice President of Lavallee Brensinger Architects, 2009, personal communication). Further the large, structurally sound open spaces allow for very flexible and personalized design opportunities of each tenant's space. Businesses that are too small to afford to build their own building can easily create a personal and unique space in the area they rent within the larger mill building (Timothy Sheldon, Director of Design for Brady Sullivan Properties, 2009, personal communication). Also interests with abnormal space requirements find the mills extremely accommodating. For example a climbing gym located in one of the mills makes good use of the high ceilings found on the top floors of these buildings as well as a former elevator shaft.

The URP was not overly concerned with the historic or aesthetic aspects of the district. In fact many of its critics complained that in razing buildings and filling in the canals much of the uniqueness of the district was irretrievably lost. It did however see that all the phone and electrical utility lines were placed underground, a move which benefited both the aesthetics and the history of an area laid out before the advent of commonly available electrical power. It also created two public parks within the district that still exist today. In the last decade the city has undertaken a number of minor actions towards creating and promoting an image for the district. They have put in brick lined sidewalks and planted trees along the major road through the heart of the district. The Millyard Design Review committee was established in order to ensure that the property owners respected the cohesive image of the district. As the mill buildings fill with more high profile and successful tenants the mill district, and the rest of the city, benefit from the perceived desirability of the area as a place to locate a business.

Conclusions

The Manchester Mill District has many things to teach us about the redevelopment of aging urban industrial districts. It gives us concrete examples of many of the urban development theories reviewed earlier in this study. Further the Manchester Mill District raises important points to consider for any municipality wishing to breathe new life into its own under-developed industrial areas. While this study has not examined the larger national and global economic trends that may have contributed to the inflow of capital to the area, there are a number of other mill towns in New England of all sizes, similarly placed in relation to the local economic centers of Boston and New York, whose mill buildings are still vacant or underdeveloped. Larger economic trends were critical to the redevelopment of Manchester's mills and are reflected in the two waves of private investment and the less active years between them. However if these trends had been the sole catalyst, then the success experienced in the Manchester Mill District would likely have been a more widespread phenomenon.

The Manchester Mill District is a prime example of the potential for success in applying mixed use zoning to old industrial areas. Negative images associated with the mills in Man-

chester were largely overcome by private investment in the cleaning up and improved maintenance of their properties. The image of the Manchester's industrial past has also been brightened by an embracing of its roots. The city has chosen to celebrate, through museums and historical displays, the era of industry that created the mills. These actions send a clear but unstated message that the textile days are the past and that the problems that went with this now romanticized era of industry are no longer present in the modern mill district. This public and private sector re-imaging of the district is one of the most important parts of the success story of the Manchester mills and is the aspect most easily transferred to other projects. By clearly identifying both what separates a former industrial district's future and past, as well as that which connects them, a municipality can celebrate a district's history while opening the door for creative re-development. One of the conclusions of Zukin's work is that cultural strategies can bring benefit to almost all cities and that all cities can be winners. Such cultural strategies "encourage entrepreneurial innovation and creativity" and can "create a sense of belonging." (Zukin 2010, 234). In the case of Manchester, both the history and creative re-development of the city's industrial district contributed significantly to that district's reputation and desirability.

The path of success followed by the Manchester mills has been based on a largely tacit give and take between the city and private interests. The city has provided the necessary base infrastructure to the area and then, with the advent of the mixed use zoning, left redevelopment primarily in the hands of private interests. In turn, private interests have found the combination of infrastructure and mixed used zoning to be acceptable and in their economic self-interest; investing large sums of capital into the buildings over time. Together, the city and property owners have labored to change the public's negative image and perception of the district to that of a place of modern business, work, consumption and recreation; a place that looks forward while also engaging the past and history of the mill district.

The size and cohesive appearance of the Manchester Mill District may make it an anomaly. Few other cities will be able to form an industrial redevelopment district quite like the one seen here and research remains to be done to examine how the factors identified here apply to the redevelopment of more fragmented districts in other cities and similar mill properties in smaller towns. Nonetheless, many of the lessons learned here may be applied to other forms of post-industrial urban redevelopment. Foremost, this study shows the need for municipalities to work with property owners in creating a mutually beneficial future. Toward that end, Manchester shows the intrinsic value of mixed use zoning in redevelopment areas located in the urban core, a tool that can be used in any city. While not as easy in a less well defined or identifiable district, the rebranding of a district is a powerful tactic that can be used in other urban areas. Painting an image of a bright future built on an area's past allows a city and the private sector to capitalize on the two most important resources that post-industrial redevelopment has to offer: affordable downtown space and a rich sense of place.

SCOTT HASTINGS is pursuing a masters degree in Community Planning and Development with the Muskie School of Public Service at The University of Southern Maine, Portland ME 04104. Email: scott.p.hastings@maine.edu. His interests are in mill town revitalization and sense of place/place making.

NATHANIEL S. TRUMBULL is an Assistant Professor in the Department of Geography, University of Connecticut/Avery Point, Groton, CT 06340. Email: trumbull@uconn.edu. His research interests center on coastal management and urban and community development.

References

- Applied Economic Research. 1983. *Amoskeag Millyard economic and development strategy*. Manchester, NH: Applied Economic Research.
- Ball, R. 1999. Developers, regeneration and sustainability issues in the reuse of vacant industrial buildings. *Building Research & Information* 27(3):140-148.
- Bell, F. G., D. D. Genske, and A. W. Bell. 2000. Rehabilitation of industrial areas: Case histories from England and Germany. *Environmental Geology* 40(1-2):121-134.
- Cantell, S. C. 2005. The adaptive reuse of historical buildings: regulation barriers, best practices and case studies. Unpublished master's thesis, Virginia Polytechnic Institute and State University, Blacksburg, VA.
- De Sousa, C. 2000. Brownfield redevelopment versus greenfield development: A private sector perspective on the costs and risks associated with brownfield redevelopment in the greater Toronto area. *Journal of Environmental Planning and Management* 43(6):831-853.
- Fisher, G. A. 2006. The gentrification of Manayunk. Unpublished master's thesis, University of Pennsylvania, Philadelphia, PA.
- Florida, R. 2005. *Cities and the creative class*. New York: Routledge.
- Gorman, H. S. 2003. Brownfields in historical context. *Environmental Practice* 5:21-24.
- Hareven, T. and R. Langenbach. 1978. *Amoskeag: Life and work in an American factory-city*. New York: Pantheon Books.
- Hareven, T. and R. Langenbach. 1981. Living places, work places and historical identity. In *Our past before us: How do we save it?* eds. D. Lowenthal and M. Binney. London: The Blackwell Press.
- Howard, P. 1984. Developer nixes condos in millyard. *The Union Leader*. Clipping on file at the Manchester Public Library.
- LeGates, R. T. and S. Stout. 1999. Representing cities in a global world. In *Globalization and the city*, eds. J. R. Short and Y. H. Kim. Harlow: Longman.
- Manchester City Planning Board. 1963. *Land use plan*. Manchester, NH: Manchester City Planning Board.
- Manchester City Planning Board. 1964. *Facilities plan*. Manchester, NH: Manchester City Planning Board.
- Manchester City Planning Board. 1993. *Master plan for the City of Manchester, NH*. Manchester, NH: Manchester City Planning Board.
- Manchester City Planning Board. 2008. Millyard design review. In *City of Manchester, NH Official Web Site*. <http://www.manchesternh.gov/website/Departments/Planning/LandUse-Management/MillyardDesignReview/tabid/476/Default.aspx> (last accessed 14 April 2009).
- Manchester Housing Authority. 1966. Amoskeag Millyard project urban renewal plan (amended 1973, 1976 and 1984). Manchester, NH: Manchester Housing Authority.

- Manchester Housing Authority. 1982. The Amoskeag Millyard urban renewal project: Summary report. Manchester, NH: Manchester Housing Authority.
- Manchester Zoning Board. 1964 *Manchester zoning ordinance*. Manchester, NH: Manchester Zoning Board.
- Manchester Zoning Board. 2001. *Zoning ordinance, City of Manchester, NH*. Manchester, NH: City of Manchester Department of Buildings.
- Manuse, A. J. 2008. Downtown residents may fuel next boom. *Manchester Express*, 22 May 2008. <http://www.peoplesvoice.org/articles/1320/print> (last accessed 15 April 2009).
- McQuaid, B. J. 1969. Answers to millyard critics. *The Union Leader*, 22 February.
- McQuillen, M. 1979. Millyard project nears completion. *The Union Leader*, 12 August.
- Mitchell, D. 2000. *Cultural geography: A critical introduction*. Malden, MA: Blackwell Publishing.
- Mowry, M. J. 2003. Working mills. *Business NH Magazine*. November: 16-20.
- Mullin, J. R., J. H. Armstrong, and J. S. Kavanagh. 1988. From mill town to mill town: The transition of a New England town from a textile to a high-technology economy. *Journal of American Planning* 5(1):47-59.
- O'Donnell, B. 1994. *The spindles stop: Lowell, Massachusetts, and Manchester, New Hampshire, respond to the collapse of the New England textile industry*. Unpublished doctoral dissertation. Cambridge, Mass.: Massachusetts Institute of Technology.
- Relph, E. 1976. *Place and placelessness*. London: Pion Limited.
- Schilling, J. M. 2002. The revitalization of vacant properties: Where broken windows meet Smart Growth. Washington, DC: International City/County Management Association. http://www.usmayors.org/brownfields/library/Revitalization_of_Vacant_Properties.pdf (last accessed 7 July 2011).
- Villa, Y. 2007. *An evaluation of mill conversion as an urban revitalization strategy in Lowell, Massachusetts*. Unpublished master's thesis. Medford, Mass.: Tufts University.
- Walljes, I. and R. Ball. 1997. Exploring the realities of the sustainable city through the use and reuse of vacant industrial buildings. *European Environment* 7:194-202.
- Zukin, S. 1982 *Loft living: Culture and capital in urban change*. Baltimore: The Johns Hopkins Univ. Press.
- _____. 1995. *The cultures of cities*. Cambridge, Massachusetts: Blackwell Publishers.
- _____. 2010. *Naked city: The death and life of authentic urban places*. Oxford: Oxford Univ. Press