Neighborhood Revitalization through Adaptive Reuse

by

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Abstract

Adaptive reuse and historic rehabilitation have been utilized as a development strategy since the creation of the Federal Historic Preservation Tax Credit in 1976. In many cases, the adaptive reuse of vacant properties has been utilized as a tool for neighborhood economic development and revitalization. This strategy has increased in popularity since the start of the 21st century, with many states creating additional historic tax incentive programs, and investment in rehabilitation projects using the Federal Historic Tax Credit reaching nearly $6 billion in 2014. This thesis examines three residential projects in Massachusetts developed during the 1980s, in order to investigate the long-term impacts of adaptive reuse on the surrounding neighborhood. The case studies include the Baker Chocolate Factory in Dorchester, Museum Square in Lawrence, and the Francis Cabot Lowell Mill in Waltham. Through an in depth analysis of these case studies using qualitative and quantitative research methods, this thesis connects aspects of the development process and external influences to positive or negative neighborhood development outcomes. Findings reveal that these case studies had varied impacts on their surrounding neighborhoods; while the Baker Chocolate Factory development was associated with increased property values and additional investment, the Museum Square project appeared to affect very little change in the adjacent community. From these findings, it appears that residential adaptive reuse is an effective tool for neighborhood social and economic development under the right political and economic conditions, and with strategic decision-making during the development process. Key factors that contributed to the success of the adaptive reuse projects focused on in this thesis include the following: effective use of financial incentives and subsidies, local political support, local resident involvement, CDC and nonprofit involvement, and the presence of broader plans for neighborhood revitalization. The thesis concludes by presenting recommendations for how the strategy of adaptive reuse can be improved to have a more significant, positive long-term impact on the surrounding community.

Thesis Supervisor:
Phillip C. Clay, Professor and Head of Housing, Community and Economic Development Group
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Chapter 1: Introduction

As the economy fluctuates and real estate development shifts, cities are left with buildings that are unused or being used inefficiently. Adaptive reuse is the process by which these buildings are rehabilitated to serve a more efficient and necessary use. However, there is the belief that the adaptive reuse of older buildings is uneconomic, particularly in the US (Bullen and Love 2009, 351). Moreover, “retention of older commercial buildings has commonly been regarded as a barrier to progress and a hindrance to the regeneration of older urban areas” (Bullen and Love 2009, 351). Despite these notions, adaptive reuse projects have been undertaken to produce new commercial, office and residential space. In recent years, there seems to have been a growing movement in support of adaptive reuse, with many projects being
undertaken in communities with an industrial past or historic structures. This push toward adaptive reuse has been reflected in public policy, with some states establishing historic rehabilitation tax credits to incentivize this type of development. In many situations, these projects have even been thought of as aiding the revitalization process of the surrounding community or neighborhood, and as a catalyst for future investment and development.

**Research Question**

This thesis explores the relationship between residential adaptive reuse and long-term social and economic impacts in the surrounding community. From the field of planning to local neighborhood associations, how to improve the economic and social conditions at the community scale is a key question. There are many strategies, none of which can necessarily be a solution on its own, to improve the quality of life within disinvested neighborhoods, including small business development, workforce development, education or real estate development, to name a few. Residential real estate development has long been thought of as a tool for revitalizing neighborhoods, whether through providing additional affordable housing for residents or by developing a stronger commercial base. Adaptive reuse is a unique form of development, representing a slightly newer phenomenon whose impacts should be analyzed to inform future projects.

At the most basic level, this thesis asks: **what is the impact of residential adaptive reuse on the surrounding community?** An important factor here is which stakeholders are involved in the development process, and if the adaptive reuse project is intended to serve as an engine for neighborhood revitalization. A more specific question is: **do residential adaptive reuse projects that are intended to be catalysts for economic and social development have a long-term impact on the surrounding community?** As this thesis will discuss in depth, residential adaptive reuse projects are complicated, as most of this type of development occurs in neighborhoods with weaker housing markets. Additionally, these projects cannot be looked at in a vacuum, as they are influenced by external factors including the economy and housing market at the local, regional, and even national level, local political climate, and crime, among many others. Considering these issues, an essential question to ask is: **what are the internal and external factors involved in residential adaptive reuse that are associated with positive or negative long-
term outcomes? Finally, this thesis will conclude by answering the question: how can the strategy of residential adaptive reuse be improved to have a more significant, positive long-term impact on the surrounding community?

Methodology

In order to answer the questions posed in the previous section, this thesis incorporates both qualitative and quantitative research methods. First, I conducted an extensive review of scholarly research related to neighborhood economic development, real estate development, historic preservation and adaptive reuse. This was essential to establishing a basis through which to analyze adaptive reuse as a tool for neighborhood development. Additional core information related to real estate, adaptive reuse and community development was gathered through interviews with experts in the field, including developers, non-profit organizations, community development corporations and academics.

Qualitative

The core of my research, both qualitative and quantitative, is focused on three case studies of adaptive reuse projects in the Greater Boston area, the Baker Chocolate Factory in Dorchester, the Museum Square Apartments in Lawrence, and the Francis Cabot Lowell Mill in Waltham. These cases were selected based on a set of criteria related to time of completion, location, neighborhood context, and project characteristics, which I will discuss in greater detail later in this thesis. Other cases at the neighborhood and city scale, like Dudley Square in Boston and the City of Lowell, will serve as comparisons. In depth interviews were conducted with the developers of each project, as well as stakeholders involved in the development process at the neighborhood or project level, including civic associations, nonprofits, property managers, financial institutions and city officials. Interviews with these stakeholders were essential to uncovering the inner-workings of the development process, as well as understanding relationships with the local community and the social and economic outcomes of the projects.
Quantitative

Quantitative research is used to supplement the stakeholder interviews and to identify changes in the neighborhoods surrounding these adaptive reuse projects following development. Each adaptive reuse project that serves as a case study for this thesis was developed in the 1980s, providing at least 25 years of neighborhood growth and change to analyze. Quantitative data used in this analysis includes property assessment data, property sales data, and socioeconomic and demographic characteristics. Because these case studies are located in different municipalities, data was pulled from a variety of sources, including local assessor’s offices, planning departments, the US Census, and the American Community Survey. I was unable to access identical data for each project, which necessitated employing slightly different quantitative methods for each of the case studies.

The quantitative analysis for this thesis follows a similar structure to a 2014 study of the effects of historic district designations in NYC. This study, titled *Preserving History or Hindering Growth? The Heterogeneous Effects of Historic Districts on Local Housing Markets in New York City*, looks at the impact of historic designation on new housing construction and the sales price of residential properties (Been et al. 2014, 16). To analyze new construction activity, the study divides each historic district area into the “district” zone and the “bordering” zone and assesses the differences in new construction in each area (Been et al. 2014, 17). For sales prices, the basic approach involved a comparison of property prices in historic districts “to prices of comparable properties that are outside the boundaries of a district, but still located in the same neighborhood (census tract).” The authors then examine whether the magnitude of this difference changes after historic designation (Been et al. 2014, 19). To design the quantitative portion of this thesis in a similar way, I draw a geographic boundary around the area immediately surrounding the site of each case study to represent the project neighborhood. I then select a geographic area just outside of this “project neighborhood” to serve as a comparison. Changes in property values, sales, demographics and socioeconomics within each of the “project neighborhoods” after the development of the adaptive reuse projects are analyzed in relation to the comparison areas.

In addition to this neighborhood comparison, I conduct a regression analysis that measures the relationship between property values and proximity to the project site. I also
conduct a pre and post analysis of the areas surrounding the project before and after
development. More specifically, I measure the property sales of the project neighborhood for
several years prior to development, and compare this data to the several years after development
to identify any shifts in trends. Due to a small sample size, this thesis does not provide the same
statistical significance as the aforementioned research study on historic districts in New York
City. However, a quantitative approach provides a valuable supplement to the qualitative portion
of this thesis composed of stakeholder interviews, literature review and development project
analysis.

Thesis Structure

This thesis begins with a general discussion of adaptive reuse as a tool for neighborhood
economic development, as well as a description of the factors that go into this development
process. Chapter 3 introduces the three case studies that form the core of the thesis, including a
description of their neighborhood context and the financial breakdown of each project. Chapter
4 presents the quantitative research findings. This section mainly assesses whether or not these
case studies have had a long-term economic impact on their surrounding neighborhood. Chapter
5 discusses the qualitative research findings through stakeholder interviews and the review of
original development documents. This chapter includes an assessment of the impact of the
projects, and begins to connect long-term outcomes with development decisions and external
factors. Chapter 6 synthesizes the findings presented in Chapters 4 and 5, and makes
comparisons across case studies to present an analysis of adaptive reuse as a tool for
neighborhood revitalization. The thesis concludes by making recommendations for future
adaptive reuse projects with social and economic development goals.
Chapter 2: Discussion of Adaptive Reuse and the Development Process

While there are certain elements that are consistent across projects, adaptive reuse is by no means a replicable process. Each project has characteristics that are unique to the site, the building, the neighborhood, the local government, and even the developer. In the cases analyzed in this thesis, each adaptive reuse project converted a vacant building to residential that originally functioned for a different use. The Baker Chocolate Factory was a food producer, Museum Square was originally a storage warehouse, and the Francis Cabot Lowell Mill was one of the earliest textile mills in the US. Each of these initial uses presents a unique set of challenges that must be addressed during redevelopment, including the architecture of the building and any environmental conditions related to previous functions. The design of these buildings and their former uses have a significant impact on their financial viability as adaptive reuse projects, particularly related to qualification for historic tax credits. Chapter 2 provides a brief history of adaptive reuse and historic preservation, an overview of adaptive reuse as a tool for redevelopment, and details how these projects are financed and brought to completion.

What is Adaptive Reuse? Historic Preservation?

It is important to distinguish between adaptive reuse, historic preservation and rehabilitation. Two of the case studies, the Francis Cabot Lowell Mill and the Baker Chocolate Factory, are historic preservation projects, as they were certified as historic structures by the National Park Service and eligible for the Federal Historic Tax Credit. While Museum Square could be considered to have historical significance, it was not eligible for Federal Historic Tax Credits, and therefore was simply an adaptive reuse project. Adaptive reuse necessitates a change in the function of a building, for instance, changing the use of the property from manufacturing to housing. Each of the case studies in this thesis satisfy the criteria to be considered adaptive reuse. Neither historic preservation nor rehabilitation projects are necessarily adaptive reuse, unless they involve a change in the function of the building. An historic rehabilitation or preservation project could simply involve renovating a vacant, historic apartment building and reopening it for use. This thesis focuses on adaptive reuse, or historic adaptive reuse, as a strategy for neighborhood social and economic development.
Why Adaptive Reuse and not New Development?

Real estate development, particularly mixed-income and affordable housing, is well established as a tool for revitalizing disinvested neighborhoods. While this concept will be explored in greater detail later in this section, real estate development is a common tactic used by Community Development Corporations (CDCs), Non-profits, and cities, often working with for-profit developers. These investments in real estate development come more often in the form of new construction or rehabilitation, but also take the form of adaptive reuse. The reasons for pursuing an adaptive reuse project, as opposed to new development, are numerous and quite specific.

In the case of historic preservation, these projects have the benefit of protecting or rehabilitating a structure that holds cultural significance. Adaptive reuse and historic preservation also present unique opportunities for developers and the communities in which they are located. From the perspective of a private developer, adaptive reuse projects fundamentally represent a development opportunity that can provide a reasonable return on investment. However, adaptive reuse requires a unique skill set and knowledge on the part of the developer, and often attracts developers with a broader perspective on neighborhood revitalization and historic preservation. Keen Development Company, the initial developer of the Baker Chocolate Factory Apartments, and WinnDevelopment, the developer of the more recent project within the Baker complex, the Lofts at Lower Mills, both specialize in historic preservation and adaptive reuse. WinnDevelopment states that one of their “specialties is property rehabilitation and turnaround” and that they “strive to better our communities by working with HUD and various state and local agencies” (WinnDevelopment). Most importantly, from the perspective of the developer, adaptive reuse provides access to additional capital through historic preservation tax credits that are not available for new construction. As will be described in detail later in this Chapter, the National Park Service provides incentives to preserve historic properties through a Federal Historic Tax Credit, and Massachusetts provides similar incentives through a State Historic Rehabilitation Tax Credit that was created in 2004. Larry Curtis, the Executive Director of WinnDevelopment, described in a lecture at the Harvard Graduate School of Design the important role that both federal and historic tax credits played in a recent residential adaptive reuse project, Boott Mills in Lowell, MA (Curtis, February 2015). Winn and Keen Development
have fostered an expertise in adaptive reuse and historic preservation that enables them to pursue real estate development opportunities that many other companies would not.

Tom Gleason, the Executive Director of MassHousing, an affordable housing-oriented lending agency in Massachusetts, distinguished between the strategy of adaptive reuse development and new construction. He explained that adaptive reuse and historic preservation generally take place within an urban context, which necessitates a different mindset on the part of the developer than suburban investment (Gleason, April 2015). Additionally, the developers that are successful with projects similar to the Baker Chocolate Factory are making a longer-term investment. They have a vision for the project and the surrounding area, and are often committed to revitalizing the adjacent community, in part because it will make their own investment more valuable (Gleason, April 2015). Developers like Keen and Winn see adaptive reuse projects as unique development opportunities in which they have a particular advantage. The projects are complex, but they provide tax incentives that can be leveraged effectively by experienced developers. Under the right conditions with an experienced developer and an effective financing structure, adaptive reuse projects can be profitable and contribute to positive economic development in the surrounding neighborhood.

From the perspective of the CDC, non-profit developer or neighborhood community organization, adaptive reuse and historic preservation projects provide a number of unique benefits apart from new construction. First, the structures in these cases that are rehabilitated into housing are almost always vacant, as was the case for the Baker Chocolate Factory, Museum Square and the Francis Cabot Lowell Mill. Adaptive reuse converts a vacant, rundown building into a productive use, ridding the surrounding community of a structure that is often associated with blight and attracting crime. A project of this nature is more likely to foster community support than a new construction project that isn’t directly addressing an issue of blight. Adaptive reuse projects also represent less change to the aesthetic of a neighborhood. Kristen Harol, a managing partner at the Life Initiative and former Deputy Director of Lawrence Community Works, stressed the emotional benefit from the community perspective of adaptive reuse (Harol, December 2014). New construction, or demolition, can be intimidating to community members and represent significant change. On the other hand, adaptive reuse maintains and improves the existing neighborhood aesthetic, while transitioning a vacant structure to a productive use.
Finally, adaptive reuse and historic preservation, as individual projects or as part of a broader initiative, can foster community pride. Jeanne Pinado, the CEO of the Madison Park Development Corporation, emphasizes the impact that adaptive reuse and historic preservation can have on how residents perceive their own neighborhood (Pinado, January 2015). Madison Park works in the Dudley Square neighborhood of Dorchester and Roxbury, a historically impoverished area suffering from disinvestment. In recent years, there have been a number of adaptive reuse projects in the neighborhood conducted by Madison Park and another local CDC, Nuestra Comunidad. Madison Park views these adaptive reuse projects, including the renovation of a historic performance venue known as Hibernian Hall, as a means to build support and recognition from within and outside of the community (Madison Park Development Corporation). In the case of Lower Mills, Dorchester, the Baker Chocolate Factory had been a symbol of the neighborhood for nearly a century, as well as the main source of employment for community residents. Gary Tondorf-Dick, neighborhood resident and the former Director of the Lower Mills Civic Association, explains that there was a great attachment within the community to the Baker Complex and it provided a real sense of place (Tondorf-Dick, February 2015). The adaptive reuse of the Baker Chocolate Factory inspired a level of neighborhood pride that would have been lost through new construction. The commitment of residents to their community, which can be fostered through adaptive reuse, undeniably brings benefits in terms of quality of life and should be reflected in the social and economic conditions within the neighborhood.

**History of Adaptive Reuse and Historic Preservation**

Modern historic preservation and adaptive reuse in the US have their roots in the urban renewal period of the mid-twentieth century. Post-World War II, planners worked to solve issues of overcrowding and substandard living conditions in American cities through demolition and redevelopment (Ryberg-Webster and Kinahan 2014, 121). Urban renewal brought about the loss of many historic neighborhoods and buildings, and corresponded with the construction of interstate highway systems that divided communities. The concept of historic preservation gained traction after the 1963 demolition of Penn Station in New York City, which led to significant public outcry (Ryberg-Webster and Kinahan 2014, 121). As criticisms of urban renewal increased and attitudes shifted, “federal policy continued to move away from top-down,
demolition-based redevelopment toward locally controlled, conservation-oriented strategies (Ryberg-Webster and Kinahan 2014, 121). Until 1976, the “federal tax code made it more financially beneficial to demolish and build new (Ryberg-Webster and Kinahan 2014, 121). This was the year that the federal tax incentives for historic preservation were created, and by 1986 the current structure of the historic tax credit had been established.

Lowell, an old industrial city in Massachusetts of just under 110,000 people, is a perfect example of how a city can embrace adaptive reuse and historic preservation as a strategy for long-term revitalization. The city was hit heavily by urban renewal after WWII through the 1960s. Many historical neighborhoods, including “Little Canada” and the “Acre,” two neighborhoods heavily populated by working class French Canadian and Greek populations, were torn down as part of federally-funded Urban Renewal projects (Marion 2014, 16). Historic preservation entered into the community consciousness in Lowell after the demolition of many historic mills and residences, particularly the destruction of the Merrimack Manufacturing Company’s worker housing on Dutton Street (Marion 2014, 17). A major step in the preservation of Lowell’s historic structures came in 1978 when federal legislation was signed creating the Lowell National Historic Park, which brought a commitment of $40 million in federal funds. In the final 25 years of the twentieth century, public and private investors, and community development groups spent more than $1 billion to renovate old mills for commercial and residential use, along with significant additional investment in infrastructure and amenities (Marion 2014, 19). More than 400 historic buildings were restored, as Lowell embraced adaptive reuse and historic preservation to revitalize communities that were struggling significantly since industry left the area in the mid-twentieth century (Marion 2014, 19).
Adaptive reuse or historic preservation as a development strategy has grown in popularity in recent years. The use of Federal Historic Tax Credits on rehabilitation projects has increased consistently since the early 1990’s, despite a drop off between 2008 and 2010 during the financial crisis (National Park Service 2014). The total estimated investment in proposed rehabilitation projects using the historic tax credit was $5.98 billion in 2014, the second highest annual investment total in the history of the Federal Historic Tax Credit Program, surpassed only by 2013 (National Park Service 2014). Many states, including Massachusetts, have adopted historic tax credit incentives to supplement the federal program. Massachusetts created its State Historic Rehabilitation Tax Credit in 2003 and it has since spurred significant development. Between 2004 and 2008, $74 million in state historic tax credits have leveraged nearly $1 billion in private investment within Massachusetts (Preservation Massachusetts 2011). Larry Curtis, President and Managing Partner at WinnDevelopment, stressed the importance of the State Historic Tax Credit to the financial feasibility of adaptive reuse projects (Curtis Lecture 2015). Often times, the Federal Historic Tax Credit is not enough to make these preservation and adaptive reuse projects feasible in secondary and tertiary cities, like Lawrence (Curtis Lecture 2015). Boott Mills in Lowell, and the Lofts at Lower Mills, a recent adaptive reuse project in the Baker Chocolate Factory Complex, are two examples of Winn projects that have made use of the Massachusetts Historic Rehabilitation Tax Credit.

![Federal Tax Incentives For Rehabilitating Historic Buildings 1977-2014](image)

Approved Proposed Projects (Part 2 applications)

Source: National Park Service – Tax Credit Statistical Report for Fiscal Year 2014
Adaptive Reuse as a Strategy for Neighborhood Development

This thesis is fundamentally focused on understanding how adaptive reuse can be used as a tool to revitalize neighborhoods experiencing disinvestment. Based on a review of academic literature and qualitative research, it certainly appears that adaptive reuse and historic preservation projects can have a significant impact on the surrounding community. An example of an adaptive reuse initiative that has had positive social and economic impacts is the Los Angeles Adaptive Reuse Ordinance, which began in downtown Los Angeles in 1999 but was extended into other neighborhoods in 2003 (LA Office of Historic Resources). Through the City of LA Adaptive Reuse Program, the local government offered additional incentives for developers to undertake adaptive reuse projects. These incentives included flexibility in zoning and building code requirements, as well as with construction standards (Bullen and Love 2009, 353). The project has resulted in economic growth seen through increased property values and reduced vacancy rates in disinvested areas (Bullen and Love 2009, 353). While this LA initiative does not represent the spillover impacts of a specific development project, it provides evidence that adaptive reuse is a viable strategy for economic regeneration.

A 2014 report published by the National Bureau of Economic Research investigates the impact of historic district designations on residential property markets in New York City. Property owners within these historically designated communities are limited in how they are able to alter real estate, in effort to preserve the historic character of the neighborhood. The study finds that “after controlling for other structural characteristics, properties located in areas that are or will become historic districts sell for approximately 20 percent more than comparable properties outside those districts” (Been et al. 2014, 23). Furthermore, the “designation of a historic district leads to an 11.9 percent increase in the average value of these bordering properties – a substantial bump for properties located just beyond the districts” (Been et al. 2014, 24).

Historic preservation has clearly been evidenced to have a positive impact on property values and community revitalization. However, this thesis analyzes the impact of individual adaptive reuse and historic preservation projects, rather than larger historic designations and adaptive reuse policies. For this reason, it is important to consider how specific real estate developments can impact the surrounding community. Real estate development is often used as
a tool for neighborhood revitalization, as evidenced by the numerous federal, state and local policies incentivizing development, as well as the CDCs and Non-profit developers that use real estate as a tool for positive economic change. These institutions and policies often focus on affordable housing development, but the larger-scale community impact is also important. A 2006 study in New York City evaluated “whether projects developed by nonprofit developers generate different neighborhood spillover effects than those developed by for-profit firms” (Ellen and Voicu 2006, 36). The results of this study indicate that both nonprofit and for-profit rehabilitation projects resulted in significant, positive spillover effects, in terms of increased property sales prices (Ellen and Voicu 2006). In the context of this thesis, these studies show that real estate development, whether adaptive reuse or new construction, is a viable tool to create positive economic spillovers.

Numerous contributors to this thesis stressed the positive impact that adaptive reuse redevelopment can have on distressed communities. Jeanne DuBois, Senior Advisor and former Director of the Dorchester Bay Economic Development Corporation (DBEDC), emphasized the impact that a number of historic preservation, adaptive reuse projects have had on the Dudley Square neighborhood of Roxbury and Dorchester (DuBois, February 2015). These projects were part of a multifaceted initiative to revitalize the area, but there were a set of adaptive reuse buildings that helped to catalyze reinvestment in Dudley Square (Thornhill and Price, January 2015). As mentioned previously, adaptive reuse played a huge role in the revitalization of the City of Lowell. Jim Campbell was the Assistant City Manager of Lowell from 1979 to 1986, and then the City Manager until 1991, during the height of Lowell’s initiative to redevelop through historic preservation. Campbell, who grew up in Lowell, cited many issues that impacted the quality of life in the City, including poverty, crime and disinvestment. Despite these problems, Lowell had a rich history that resulted in quality infrastructure, which Campbell argued is essential for successful revitalization (Campbell, March 2015). By focusing on the City’s historical assets and existing infrastructure, political leaders and community members were able to place Lowell on a track toward social and economic revitalization. Market Mills was one of the earliest mill conversions in the City, which transformed an abandoned and deteriorating industrial property into 230 affordable apartments (National Park Service). Adaptive reuse continues to be a focal point for economic development in Lowell, most recently with the conversion of the Appleton Mills into 130 affordable apartment units.
Development Process

A key question that this thesis asks is: **what are the factors involved in residential adaptive reuse that are associated with positive or negative long-term outcomes?** In other words, this thesis seeks to connect aspects of the development process with certain outcomes in the surrounding neighborhood. This section of Chapter 2 discusses some of the key factors involved in the development process for an adaptive reuse project. These factors will be analyzed in depth for the three case studies focused upon in this thesis.

Key Stakeholders

A key component of the development process for a real estate project with goals of community revitalization is the involvement of stakeholders. These stakeholders are involved in the decision-making for the adaptive reuse project, which can impact the long-term outcomes of the project on the surrounding community. This thesis will analyze which of these stakeholders were involved in the development process of each case study, and in what capacity. The following is a list of the key entities that may be involved in an adaptive reuse development project.

- **Developer:** Of course the developer is a key stakeholder, as they are leading the development project and make the final decisions. The developer, which may be a for-profit or non-profit entity, structures all of the financing for the project and manages the process from pre-development through construction.

- **Government:** Government, at the federal, state or local level, can be involved in an adaptive reuse project in a number of ways. As is described in further detail later in this chapter, the federal or state government often provides funding in some capacity for real estate development, particularly adaptive reuse projects that are oriented toward neighborhood revitalization. Local government is often involved in planning issues related to the projects impact on the surrounding area, and regulates development through zoning and permitting.

- **Lenders:** These institutions provide the majority of the financing for adaptive reuse development projects. Private banks are often involved, but for the types of projects
represented by the three case studies in this thesis, so are state financial institutions like MassHousing and other nonprofit lenders.

- **Architect:** The architect plays an important role, as the quality of design and rehabilitation of a historic structure can influence the long-term success of the project and its impact on the surrounding neighborhood.

- **Community Groups:** Community groups play an essential role, particularly for projects that are intended to benefit the community in which the development is located. Their influence on decisions made by the developer, or lack thereof, can hold implications for project viability and impact on neighborhood revitalization.

**Financing**

Compared to new construction, adaptive reuse and historic preservation projects can involve complicated financing mechanisms, particularly in low-income neighborhoods with weak housing markets. The cases in this thesis, located in working class neighborhoods of Lawrence, Waltham and Boston, required a variety of financing mechanisms in order to make the projects financially feasible. This section discusses, in general, the financial structures for adaptive reuse and historic preservation projects in low-income neighborhoods, while the specifics of the case studies will be detailed later.

One of the most important ways in which these projects can gain financing is through tax credits. These tax incentives can be found at the federal, state and local level, and are intended to make real estate development projects in disinvested areas more financially feasible. The Low-Income Housing Tax Credit is a well-known incentive for affordable housing development, and can be combined with other tax credits for historic preservation or rehabilitation. The Low-Income Housing Tax Credit (LIHTC) was created in 1986 with the intention of “leveraging private capital and investor equity to support the development of new and rehabilitated affordable rental housing” (Enterprise). In order to access LIHTC, developers must ensure that a certain percentage of rental units are rent restricted and available to tenants whose income is 50% or 60% less than the area median. Museum Square was able to utilize LIHTC to help finance redevelopment, but the Baker Chocolate Factory and the Francis Cabot Lowell Mill were
redeveloped prior to the creation of the tax credit. However, they participated in other programs that provided incentives or subsidies for producing affordable housing units.

Historic tax credits are also an important tool for adaptive reuse projects. Massachusetts offers a Historic Rehabilitation Tax Credit with which a project is eligible to receive 20% of the cost of rehabilitation expenditures in state tax credits. Through the National Park Service, the Federal Historic Preservation Tax Incentives Program offers tax credits of 20% for the rehabilitation of buildings designated as historic, and tax credits of 10% of non-historic buildings placed in service before 1936 (National Park Service). As was mentioned earlier, “developers can pair the rehabilitation credit with other federal programs including Low-Income Housing Tax Credits, New Market Tax Credits, and Community Development Block Grants” (Ryberg-Webster and Kinahan 2014, 121). Additionally, to provide further incentives to developers, “thirty-one states now offer a state-level tax credit, which can typically be partnered with the federal credit” (Ryberg-Webster and Kinahan 2014, 121). It is clear that tax incentives are a key component of enticing developers to take on adaptive reuse projects, as well as potentially develop affordable housing through adaptive reuse. In fact, one study conducted by the Center for Urban Policy Research at Rutgers University found that federal rehabilitation tax credits have had a “positive cost-benefit outcome of US $4.8 billion over its lifetime” (Ryberg-Webster and Kinahan 2014, 123). Over 40,000 projects to rehabilitate historic buildings have used historic tax incentives since the Federal Historic Tax Credits Program was created in 1976 (National Park Service 2014).

While LIHTC and Historic Tax Credits are arguably the most important financing tools for adaptive reuse and historic preservation projects, there are other current programs that are worth highlighting. The New Markets Tax Credit Program (NMTC) was created in 2000 in an effort to stimulate investment in low-income neighborhoods (NMTC Coalition). NMTC provides private investors with a tax credit for investing in projects with economic development benefits. This is a competitive program, as NMTCs are allocated to Community Development Finance Institutions (CDFI), who then distribute the tax credits to more locally-oriented Community Development Entities for use on community development projects. NMTCs are often used on real estate projects, including adaptive reuse, and can be combined with other tax credits to provide additional project subsidies. The case studies in this thesis do not involve any NMTC financing, as they were developed long before 2000. However, with new legislation
proposed to extend the NMTC program indefinitely, New Market Tax Credits may play a greater role in adaptive reuse and historic preservation in the future.

As the practice of adaptive reuse has evolved over the last few decades, so have financing methods and incentives accessed by developers and project stakeholders. The projects focused on in this thesis participated in grant and loan programs, at the state and federal level, that are no longer in existence. The Baker Chocolate Factory used loans through the Urban Development Action Grant program (UDAG), which was created in 1977 to “stimulate private economic development, and to do so in the nation’s most distressed urban areas” (Webman 1981, 190). Cities would apply for federal UDAG funding for particular projects, including real estate development. This process was encouraged by HUD, who often provided UDAG grants to cities who would in turn loan the funds to private developers at below market interest rates, if the projects were focused on stimulating the economy in distressed neighborhoods (Webman 1981, 191). This is precisely the story for the initial adaptive reuse of the Baker Chocolate Factory, as the City of Boston provided low-interest rate UDAG loans to the developer with the intention of providing affordable housing and spurring investment in the surrounding neighborhood. The UDAG program was officially ended in 1988, with federal spending over the course of the program totaling $4.9 billion (Reed 1989, 93).

While UDAG was a federal program, the Museum Square adaptive reuse project in Lawrence utilized a state program known as State Housing Assistance for Rental Production (SHARP). The SHARP program was created in 1983 under the Dukakis administration to expand the supply of affordable rental housing, while “recognizing the limitations of the State’s ability to subsidize private housing development” (Brecher, 4). SHARP provided a subsidy to “bridge the gap between a) the cost of permanent financing of multi-family rental housing projects by means of Massachusetts Housing Finance Agency (MHFA) tax-free bonds and b) the rental income generated by such projects” (Brecher 1986, 5). Before ending in 1990, the SHARP program financed 82 projects with 9,400 units, with 40% of the units reserved for households making 80% of the area median income (Gornstein and Verilli 2006, 15). Many of the properties financed through SHARP, including Museum Square, have suffered from financial distress after the decline in the housing market in the early 1990’s (McCall & Almy Inc. 1997, 2). As I will discuss later in this thesis, the viability and security of financing sources is certainly an important factor for adaptive reuse projects and their impact on the surrounding community.
Finally, the majority of the financing for these projects is provided through long-term mortgages and construction loans, rather than through tax credits or competitive grant programs. However, adaptive reuse projects located in neighborhoods with weak housing markets have difficulties accessing loans from banks and larger financial institutions. To fill this financing gap, states have created lending entities that provide loans to development projects located in disinvested neighborhoods. MassHousing and MassDevelopment are financing agencies in Massachusetts that work to close this gap. The Massachusetts Housing Finance Agency (MassHousing) was created in 1966 as an independent public authority charged with increasing affordable rental and for-sale housing (MassHousing 2015). MassDevelopment was created in 1998 with the merger of the Massachusetts Government Land Bank (GLB) and the Massachusetts Industrial Finance Agency (MIFA), and focuses on stimulating economic growth and eliminating blight through lending (MassDevelopment 2015). These organizations are vital for adaptive reuse projects with goals of revitalization, like the case studies included in this thesis. The Francis Cabot Lowell Mill redevelopment received nearly $14 million in loans from MassHousing, and Museum Square received approximately $19 million. The Baker Chocolate Factory Apartments accessed nearly $7 million in financing from the Massachusetts GLB and MIFA in the form of low-interest loans and fixed rate bonds.

Conclusion

Adaptive reuse and historic preservation as development strategies saw a surge in popularity during the 1980s, around the time when the projects that serve as case studies for this thesis were developed. Based on the record usage of the Federal Historic Tax Credit in recent years, it appears that these development strategies are again being seen as important tools for revitalization. This chapter described the history of adaptive reuse as a redevelopment strategy, presented some of the unique characteristics of adaptive reuse that make it an effective tool for neighborhood revitalization, and highlighted important aspects of the development process for such projects. With this foundation, the remainder of this thesis explores adaptive reuse through the lens of three case studies in order to analyze the long-term neighborhood impacts, and identify the aspects of development process associated with positive outcomes.
Chapter 3: Exploration of Three Case Studies

Criteria for Selecting Case Studies

As described in the methodology section, this thesis relies on case studies to study the impact of adaptive reuse projects on their surrounding neighborhoods. Another focus of is to understand the key factors, either internal or external to the development process, that influence the level of impact that these projects have on the adjacent community. Rather than conduct a statistical analysis of a large sample size of projects, I decided upon an in depth case study analysis to gain an understanding of the intricacies of an adaptive reuse project, and how they relate to neighborhood social and economic outcomes. Because of this reliance on case studies, it was essential to select projects that best represented the research goals of this thesis, or in other words, provided opportunities to draw strong conclusions. This section discusses the criteria for selecting the ideal case studies for research and analysis.

First, I limited the selection to residential adaptive reuse projects in the Boston area. While commercial or office adaptive reuse projects can also have a positive economic impact on the surrounding neighborhood, they can achieve this effect in different ways than residential developments. Focusing on residential projects simplifies the analysis and enables stronger comparisons to be drawn between the case studies. Next, the project must have been completed at least twenty years ago. While the twenty-year number is somewhat arbitrary, it was important to select case studies that were completed early enough to be able to study the long-term impacts on the surrounding neighborhood. For example, this extended time period should capture both the initial impacts of the adaptive reuse project on sales prices or property values, as well as later developments and investments within the neighborhood.

Another criteria is related to the neighborhood in which the project is located. First, the project must be located in a relatively low-income, disinvested neighborhood without a strong housing market. Since this thesis is focused on residential adaptive reuse from an economic development perspective, it does not make sense to analyze a project in an already economically thriving community. The goals of an adaptive reuse project in a higher income community with a strong housing market would be different from a project in a low-income neighborhood, with significantly less of a focus on social and economic revitalization. The case studies also needed
to be located in areas without other significant projects occurring simultaneously, in order to isolate the catalytic impacts of these residential adaptive reuse projects.

Finally, from a practical standpoint, it was essential that I select case studies in which I could gain access to project details, development information and key stakeholders. Most importantly, I needed to interview stakeholders who were involved in the development process in order to understand project intricacies, key decisions and motivations behind development.

_The Baker Chocolate Factory_
The Project

The Baker Chocolate Factory in the Lower Mills neighborhood of Dorchester is composed of twelve buildings that spill over into the bordering town of Milton. These buildings were originally used as mills, warehouses and administrative offices for the Baker Chocolate Company, the oldest producer of chocolate in the United States. The company was sold in 1896 to the Forbes Syndicate, who expanded the mill complex in Lower Mills, developing the Power House, the Ware Mill, Preston Mill, Forbes Mill and the Baker Administrative Building. The Baker Chocolate Company operated in this neighborhood of Dorchester until 1965, when it transferred its operations to Dover, Delaware (Sammarco 2009, 111). The last remaining operations of the company in Lower Mills were moved in 1969 (Sammarco 2009, 111).

After 1965, the Baker Chocolate Factory remained vacant until the early 1980’s, when the MA Department of Environmental Management acquired the Administration Building. MDEM wanted to use this site as a visitor center for a proposed Heritage State Park, but it remained vacant until it was renovated as affordable artist living spaces in 2002. A very important moment in the history of the Baker Chocolate complex was when the buildings were officially recognized as historic under the National Register for Historic Places. This enabled any redevelopment efforts to receive historic tax credits. The first Baker Chocolate Factory mill to be redeveloped was the Adams Street Mill in 1983 by the Keen Development Corporation, which became 53 apartment units. Keen next redeveloped the Pierce and Preston Mills, creating a combined 80 apartment units. These 3 mill redevelopments became known as the Baker Chocolate Factory Apartments.
The Neighborhood

The Baker Chocolate Factory is located in the Lower Mills area of Dorchester, the largest neighborhood in the City of Boston. Lower Mills is on the southern-most end of Dorchester, and borders the Town of Milton. Located just across the river from Lower Mills in Milton is a subway stop, part of the Red Line Extension that continues to Mattapan. To the north and northeast of Lower Mills are the neighborhoods of Ashmont, Cedar Grove and St. Marks, which have historically been working class, Irish-American areas of the City of Boston. To the west is the neighborhood of Mattapan, which in the 1960s and 1970s transitioned from a significant Jewish population to a majority African American community. Lower Mills has historically had a working-class Irish-American population, but neighborhood demographics began to shift along with many other areas of Boston within the last 30 years.

The Lower Mills neighborhood is located within two census tracts, Tract 1008 and Tract 1009. While these census tracts incorporate greater boundaries than just Lower Mills, they are able to provide a sense of the demographic trends within the neighborhood, as well as social and economic conditions. Currently, Census Tract 1008, which encompasses the eastern part of Lower Mills and extends north into Dorchester, is faring well economically with a median
household income of $68,730 compared to the median household income for the City of Boston, which stands at $52,465 (5-year ACS, 2013). Census Tract 1008 also has a higher proportion of African-American residents than the rest of Boston, at 38.3% compared to 25.2%, and much lower proportion of Latino residents, at 1.1% compared to 18.5% (5-year ACS, 2013). Interestingly, African-Americans in this area have a higher median household income than white residents, at $71,097 compared to $67,951. For the entire City of Boston, the median household income for African-Americans is $37,160 and for white residents is $68,689 (5-year ACS, 2013).

For Census Tract 1009, the median household income is slightly less than Boston overall, at just over $50,000. The median household income in this neighborhood is still slightly higher for African-American residents than white residents, and there is a significant Asian community at 16.2% of the population. Census Tract 1009 encompasses the western part of Lower Mills, and extends west into Mattapan. While this census tract is less wealthy than Tract 1008, it still has a much lower poverty rate than Boston overall, at 12.2% of families living in poverty compared to 17.6% (5-year ACS, 2013).

The demographics of the Lower Mills area have shifted quote dramatically since 1980, when the redevelopment of the first Baker Chocolate Factory was in its beginning stages. In 1980, white residents composed approximately 98% of the population of Census Tract 1008 and 80% of Census Tract 1009 (Census, 1980). At the time, the City of Boston overall was just under 70% white, with an African-American population of 22.4% (Census, 1980). In terms of income, the median household income in both Census Tracts was higher than the $12,530 median household income for Boston overall. Interestingly, in 1980 the median income of Census Tract 1009 was slight higher than Tract 1008, which has since reversed. Between 1980 and 2013, the time of the last 5-Year American Community Survey, the Lower Mills neighborhood appears to have gone from being less racially diverse to more diverse than the City of Boston overall. At the same time, it seems to have maintained a higher median household income.

Rental prices in these census tracts have most recently been slightly lower than in the City of Boston, with Census Tract 1008 showing a median gross rent of $1,243 compared to $1,261 for Boston (5-year ACS, 2013). While rents have increased significantly since 1980 across Boston, they have increased at a lower rate in the Lower Mills census tracts. In 1980,
median cash rents were slightly higher in Census Tracts 1008 and 1009 than Boston overall, which had a median of $251 (Census, 1980).

Project Financing

The various components that make up the Baker Chocolate complex were redeveloped at different times, by different developers and using different financing methods. However, this thesis focuses on the first adaptive reuse project on the site, the Baker Chocolate Factory Apartments. The Keen Development Corporation purchased Adams Mill in 1982 for $360,000, which would become the first building within the Baker complex to be redeveloped. Total development costs of the project were just over $3.4 million, and the redevelopment was financed through a combination of private loans, tax credit syndication, government loans and private equity. The Massachusetts Government Land Bank provided a loan of over $1.3 million, the Massachusetts Industrial Finance Agency provided a fixed-rate bond worth over $1.4 million, and the federal government provided an Urban Development Action Grant (UDAG) loan of $660,000. The Lower Mills Associates Limited Partnership, the partnership formed by Keen Development for the project, invested $14,800 of private equity.

Phase 2 of the Baker Chocolate Factory Apartments was developed in 1985, and was a slightly larger project at 80 units and total development costs of over $5.7 million. The financing followed a very similar structure to phase one, although it was able to receive a much larger UDAG loan at $1.2 million, and required $265,000 in private equity investment. Both Phase 1 and 2 of the Baker Chocolate Factory Apartments made use of Federal Historic Tax Credits to acquire financing for development, and included low/moderate income restrictions for tenants.
Museum Square
The Project

The Museum Square development is located within the North Canal Historic District near the central business district (CBD) of Lawrence. The site is encompassed by the Lawrence Heritage State Park, which was established in 1978. The intention of the Massachusetts Heritage State Park system was to preserve the historic nature of Massachusetts cities and act as a catalyst for economic revitalization. Lowell, a city with a similar industrial past to Lawrence, is also home to a Heritage State Park, as well as a National Historic Park which was established a few years later in 1978. Museum Square is a renovation and conversion of the 10-story Morton Building, a large former warehouse, into 176 rental units, 46 of which would be affordable. The project was developed by the Boston Land Company, a Massachusetts developer, and was completed in 1989.

The Neighborhood
Museum Square Apartments is located in the North Canal District of Lawrence, adjacent to the CBD and a few blocks south of the Campagnone Common, the main park within the City. Directly south of Museum Square and across the North Canal, is the Washington Mills complex, which has more recently been redeveloped as residential lofts. Slightly further south is the Merrimack River, which is the focal point around which all of these former mills were developed. Lawrence has been known in recent years to be one of the poorest cities in Massachusetts. Currently, it has a median household income of just over $36,000 and a family poverty rate of 26.5% (5-year ACS, 2013). It is also a predominantly Hispanic or Latino community, with 74.7% of residents identifying as such, mostly of Puerto Rican or Dominican descent. The unemployment rate is 13% and 33.4% of the population 25 years and over has not received a high school degree (5-year ACS, 2013).

Museum Square is located within Census Tract 2501, an area that extends slightly east and several blocks west of the project. This Census Tract of 2,344 people encompasses a portion of the CBD of Lawrence, and can provide a sense of the demographics and socioeconomic conditions of the neighborhood surrounding Museum Square. Currently, over 77% of the population of this area is Hispanic or Latino, which is a slightly higher proportion than Lawrence as a whole. The Census Tract also experiences significant poverty and a very low median household income, with a family poverty rate of 33.2% and a median income of almost $16,000 (5-year ACS, 2013). While the demographics of this Census Tract and the City of Lawrence have shifted in recent decades, the socioeconomics have remained more or less the same since 1980. According to the 1980 US Census, Lawrence was predominantly white, with a Hispanic or Latino population of just over 16% (Census, 1980). The Museum Square area had a larger Hispanic/Latino community at 33.8%, but this population has also increased significantly. Census Tract 2501 was also one of the poorest in Lawrence in 1980, with a median household income of just over $5,000 and 31.65% of the population living in poverty (Census, 1980). The neighborhood around Museum Square remains one of the poorest areas in Lawrence, which is one of the poorest cities in Massachusetts.

Rental prices in Lawrence and Census Tract 2501 reflect the low-income of residents in the city. Most recently, the median gross rent in the Museum Square area was $622 a month, compared to $983 for the city overall (5-year ACS, 2013). This difference also hasn’t changed in the past few decades, with a median cash rent in 1980 in Census Tract 2501 of $148 a month.
compared to $222 for the City of Lawrence (Census, 1980). Most recently, the median house value for owner-occupied units in Lawrence was $213,000, while Census Tract 2501 did not have enough of these units to produce reliable numbers (5-year ACS, 2013). There clearly has been a weak housing market in Lawrence for decades, particularly in the area around Museum Square Apartments.

Financing

Museum Square Apartments was an expensive project, with total development costs of over $24 million. The developer, Boston Land Company, pulled together a number of funding sources to finance the project. The majority of the financing was achieved through a $19 million construction loan and permanent mortgage provided by the Massachusetts Housing Finance Agency. The project was also able to acquire a housing subsidy loan through the Executive Office of Communities and Development (EOCD) as part of the State Housing Assistance for Rental Production Program (SHARP). This program enabled Museum Square to receive housing subsidy loans with the requirement that a certain number of the units are made available to low and moderate income tenants. During the development phase, it was estimated that the SHARP loan would be worth just over $8 million, or approximately $650,000 annually, over the course of 15 years. Additional financing came in the form of a Housing Development Action Grant (HODAG) of $4.2 million provided to the City of Lawrence by HUD. In 1988, it was expected that the City would loan this money to the developer of the Museum Square Project with the requirement that at least 26% of the apartment units be made available to low and very-low income families. Finally, the developers invested approximately $370,000 in equity to provide the remainder of project financing.
Francis Cabot Lowell Mill

The Francis Cabot Lowell Mill is located on the north side of the Charles River in Waltham. Waltham is a city of approximately 60,000 residents that is located about 11 miles west of Boston. The City was once a center for the labor movement and played a major role in the early stages of the industrial revolution. Currently, Waltham is home to a couple of well-
regarded academic institutions, Brandeis University and Bentley University. The Mill was built in 1814, and was one of the first factories constructed during industrialization in the US. This cotton textile mill was in service until 1929, when active manufacturing ceased. In the late 1970s, the owner of the Mill, Ira Gordon, entered into a partnership with the developer, Boston Land Company, to redevelop the complex into housing. The adaptive reuse of the Mill was completed in two phases, with the first phase creating 150 residential units in 1980, and the second phase resulting in 108 additional housing units in 1981. Since its redevelopment, the Mill has operated as a Section 8 development housing elderly tenants, providing significant subsidy for the project, but requiring specialized property management. The site is also home to the Charles River Museum of Industry and Innovation, which houses exhibits related to industrial development in the US and rents out space for events.

*The Neighborhood*
The Francis Cabot Lowell Mill is located very close to Downtown Waltham, and is only a block south of the Waltham Common, a large park in the center of the city that holds Waltham City Hall. The Mill is adjacent to Moody St., a lively commercial stretch that extends into the southern part of Waltham, a neighborhood with mostly rental housing where many of the City’s Latino immigrants reside (Gere, March 2015). There are 13 Census tracts in Waltham, and the Francis Cabot Lowell Mill is located on the border of two of them. The Mill is actually within Tract 3688, which extends much further to the east of the site. South of the Charles River, adjacent to the Mill, is Census Tract 3685, which encompasses much of the Moody St. corridor. An analysis of demographics and socioeconomics within these census tracts will provide a sense of the neighborhood around the Mill, and its relationship with broader trends within Waltham.

Waltham is bordered by wealthy Boston suburbs, like Lexington, Belmont and Newton, but is characterized by a more diverse, working class population. In 2013, 68% of residents were non-Hispanic White, 10% were Asian-American, 5% African-American, and 13% Hispanic or Latino (5-year ACS, 2013). The median household income for the City is around $75,000 and the percentage of the population between 18 and 64 living in poverty is just under 11% (5-year ACS, 2013). Census Tract 3685, which is just south of the Francis Cabot Lowell Mill, appears to be more ethnically diverse and working class than the rest of Waltham. Within the Tract, there are large Asian and Hispanic/Latino population at 13% and 24% respectively, and a median household income of $56,000 (5-year ACS, 2013). Interestingly, the percentage of families living in poverty is lower, at only 4%, than City overall. Census Tract 2688, located north of the Charles River, has a similar demographic breakdown but a higher median household income at over $66,000 (5-year ACS, 2013).

Since 1980, when the Francis Cabot Lowell Mill was in the final stages of development, the demographics of Waltham have changed dramatically. Although the population has only grown by about 4,000 in the past few decades, it has become significantly more diverse since 1980, when 95% of the population was non-Hispanic and white (Census, 1980). The Census Tracts encompassing the neighborhood around the Mill were slightly more ethnically diverse than the rest of Waltham, but still had a non-Hispanic white population of over 92% (Census, 1980). In 1980, 8% of the population of Waltham was living in poverty, compared to 10% of Tract 3685 and 13% of Tract 3688 (Census, 1980). The median household income in these two tracts were, at $12,639 and $15,285, lower than the median for the City as a whole, at $18,531.
Despite a demographic transition, the neighborhood around the Francis Cabot Lowell Mill has clearly been characterized by a working class population, relative to the rest of Waltham, since 1980. The level of economic growth in this neighborhood compared to the rest of Waltham will be explored later in this thesis.

In terms of the housing market, the median house value for owner-occupied housing units in Waltham in 2013 was just under $400,000. In Tracts 3685 and 3688, the median house value was $331,400 and $366,300 respectively (5-year ACS, 2013). Unsurprisingly, the median gross rents in these two Census tracts were lower than the median rent for the City, at $1,150 and $1,072 compared to $1,325 (5-year ACS, 2013). The median cash rent in 1980 followed a similar pattern, with both Tracts having a lower median rent that the City overall, although the rent in Tract 3685 grew from $252 at a faster rate than Tract 3688 (Census, 1980). Vacancy rates were higher in these two Census tracts in 2013 than the City, both at around 9%, although only Census Tract 3688 had a higher vacancy rate in 1980 (Census, 1980).

*Financing*

Both phases of the Francis Cabot Lowell Mill received a mortgage loan from the Massachusetts Housing Finance Agency. Phase 1 of the development produced more units and was a more expensive rehabilitation project, receiving a mortgage loan of almost $6 million and total financing of nearly $8 million. As a federally-recognized historic site, the project was able to make use of Federal Historic Tax Credits to help finance its rehabilitation. Additionally, the project participated in two federal housing programs to acquire additional subsidies. HUD Section 221d, a federal government-assistance program, provided the developer with a lower-than-market rate mortgage loan interest. Most importantly, the Mill project qualified for the Section 8 program, providing housing assistance payments to the developer for renting to low-income, elderly tenants.
Chapter 4: Quantitative Research Findings

The quantitative portion of this thesis focuses on a number of metrics to measure the impact of each case study on the surrounding area. The types of data used in this analysis include property assessment data, property sales data, and socioeconomic and demographic characteristics. Since each case study is located in a different municipality with different data collection methods and availability, I vary the quantitative methods used for analysis between the projects. While the structure of this analysis was described briefly in the Methodology section, below is a detailed overview of each approach to measuring the impact of each case study on the surrounding neighborhood:

- **Land Values:** A common technique to gauge the revitalization of an area is to look at changes in the value of land. Using assessment data from Boston, Waltham and Lawrence, I isolate the assessed value of land for each parcel within a specified area surrounding the case study site. This area is defined as a radius of a quarter-mile around each adaptive reuse project. After selecting each parcel within a quarter-mile of the project site, I calculate the land value per acre, or per square foot, of each property. This allows for comparisons between parcels that may vary significantly in terms of area. Finally, I calculate the distance of each parcel from the project site, allowing for an analysis of land values by proximity to the case study.

  Next, I separate the residential parcels from the commercial parcels to analyze independently, in case of any inherent differences in land value between each type of property use. Using Stata, I run a regression with the land value of each parcel as the dependent variable, and the distance from the project site as the independent variable. After analyzing the p-value and R-squared value to determine the statistical significance and explanatory value of the regression, I produce a scatterplot and trend line. In the case of the Baker Chocolate Factory, these graphs can be compared between years to see differences in the value of land over time, based on proximity to the project site. For Museum Square and the Francis Cabot Lowell Mill, since there is only one year of assessment data, these graphs provide an image of the current or recent distribution of land values in the area surrounding the case studies.
• **Property Sales:** While the Cities of Waltham and Lawrence were unable to provide multiple years of assessment data, they were able to provide a dataset with the most recent sale of each property. Sales data can provide an even more accurate estimate of a housing values, as the valuations made by local Assessors can lag behind the current housing market. Using property sales data for Waltham and Lawrence, I compare the housing market in the area immediately surrounding the project site, or the “project neighborhood,” to the area just outside of these boundaries. The first area is defined as a quarter-mile around the project site, and the comparison area extends from this quarter-mile boundary to a radius of a half-mile from the case study. In order to control for the size of the property being sold, I divide the sale price by the building area.

Similar to the land value analysis, I separate the residential parcels from the commercial parcels, in case of differences in sale prices between the two property uses. To compare sales prices over time within the “project neighborhood” to the surrounding area, I produce a scatterplot with a trend line showing property sales prices by year. After producing these graphs for the project neighborhood and comparison neighborhood for both residential and commercial properties, they can be compared to see the trend of sales prices over time. These graphs can also be used to see if there is an immediate change in property sales prices in the area surrounding the project site after redevelopment.

• **Demographics and Socioeconomics:** In addition to looking at the property values of these neighborhoods as an indicator of revitalization, it is important to understand any demographic and socioeconomic changes that have taken place before and since project development. This data is primarily gathered from the US Census and American Community Survey, and is narrowed to the Census Tracts that surround the project site. The previous Chapter provided an overview of the socioeconomic and demographic trends, while Chapter 5 includes more of an analysis of these trends in relation to the impact of the adaptive reuse case studies.
Baker Chocolate Factory

I was able to access property assessment data from the City of Boston Assessor’s Office dating back to 2000. While this is not ideal considering the initial redevelopment of the Baker Chocolate Factory occurred in 1983 and 1985, it provides significant detail for the past 15 years of property value fluctuations in the Lower Mills neighborhood and sheds light on how the area has changed over the past 30 years. It is important to note as well that there is a gap between when the Assessor’s Office reports property values and when the assessments are conducted. For example, the property values reported in 2000 by the Assessor are actually from 1999. Understanding the exact timing of these property assessments is particularly relevant to the quantitative portion of this thesis, as I analyze the catalytic effects of adaptive reuse on surrounding property values.

2000

In order to understand the changes in property values around the Baker Chocolate Factory over time, I divided the assessment data into four points in time, approximately five years apart. I first looked at the quarter-mile radius surrounding the project site in 2000, the first year in which the City of Boston provided access to property assessment data.

Commercial Land Values - Baker Chocolate Factory

2000
This regression includes 42 commercial parcels within a quarter-mile of the project site, and assesses the relationship between land values and distance from the Baker Chocolate Factory. As you can see from the scatterplot, the trend line is downward sloping, which means that land values for these commercial properties decrease as one travels further from the project site. While there appears to be one outlier with a significantly higher land value per square foot closer to the Baker Complex, even with removing this parcel, it is clear that the trend shows lower land values as distance increases. Furthermore, the regression shows a statistically significant P-value of 0.025, which lies within the 95% confidence interval. It also resulted in an R-squared value of 11.9, which shows that the individual observations in this regression, or the land values for each parcel, follow the trend line fairly closely.

This model provides solid evidence that commercial properties around the Baker Chocolate Factory complex have higher land values per square foot than commercial properties further away. Unfortunately, I was unable to access property assessment data from the City of Boston prior to 2000, which makes it difficult to compare these results to land values from before and around the time when the Baker Chocolate Factory Apartments were developed. This would have made it possible to form a stronger argument around the impact that this adaptive reuse project has had on the revitalization of the surrounding area. However, academic research and literature can serve as somewhat of a proxy for assessment data. There has been much research that shows the negative impact that vacant buildings have on the value of surrounding properties. One academic article on vacancy and abandonment argues that “vacant and abandoned properties impose a significant externality (cost) on neighboring property owners by lowering the market value of their properties, which reduces their equity and thus, their wealth, and makes resale of their properties very difficult” (Accordino and Johnson 2000). A 2001 study by the Temple University Center for Public Policy has similar results, finding that “housing closer to abandoned properties had lower prices, all things being equal, than property located farther from abandoned properties” (Eastern PA Organizing Project 2001). They even estimated the net impact on sales price based on distance from an abandoned house. The results showed that being located within 150 feet of an abandoned property has a negative impact of $7,627, compared to a negative impact of $6,819 between 150-299 feet, and $3,542 from 300-449 feet (Eastern PA Organizing Project 2001).
This research and academic literature supports the notion that property values were depressed around the vacant Baker Chocolate Factory complex before redevelopment began in the early 1980s. The fact that the regression model shows a relationship between proximity to the Baker Chocolate Factory and higher land values for commercial properties, indicates that the adaptive reuse of the complex has likely had a positive economic impact on the surrounding area. While it would be ideal to have assessment data for the twenty years prior to 2000, there are still positive indications as to the catalytic impact of the Baker Chocolate Factory redevelopment.

An analysis of the 297 residential properties within a quarter-mile of the project site did not reveal a significant relationship between land value and proximity to the Baker Chocolate Factory. The P-value produced from the regression was not within the 95% confidence interval and the R-squared value was insignificant. As you can see from the scatterplot, there is no noticeable relationship between residential land value per square foot and distance to the Baker Complex. However, based on the research that was discussed in the previous section, one might expect that the residential property values around the Baker Chocolate Factory while it was vacant would have been depressed. In that case, the fact that the land values for residential properties around the site in 2000 were pretty similar to properties located further away points to
some positive change. However, the results of this regression are clearly not as significant as those from the analysis of commercial land values in the previous section.

Unlike in 2000, land values of commercial properties in 2005 do not seem have a significant correlation with distance from the Baker Chocolate Factory site. While the scatterplot shows a general trend of decreasing land values as the distance from the project site increases, the regression does not produce a statistically significant P-value or a reasonably high R-squared. It is unclear exactly why the trend shifted from 2000. The average land value per square foot for commercial properties within the quarter-mile radius certainly increased between 2000 and 2005, although at a faster rate further from the project site. Perhaps the outer land values were being dragged up by the disproportionately high land values for commercial properties closer to the Baker Chocolate.
Interestingly, land values per square foot for residential properties closer to the Baker Chocolate Factory seemed to have increased at a higher rate, relative to properties that are further from the site, between 2000 and 2005. In 2000, the trend line for this regression was almost completely horizontal, and there was little relationship between the proximity to the project site and land value. This was supported by the statistically insignificant P-value and low R-Squared. Conversely, the scatterplot for 2005 shows a trend line that clearly slopes downward as distance from the site increases. Moreover, the regression produced a P-value of less than 0.001, which lies well within the 95% confidence interval and shows statistical significance. In 2005, whereas the land values of residential parcels furthest away from the Baker Complex were clustered around $20 per square foot, the parcels closest to the project site hovered around $40 per square foot, with a few dropping to less than $20. This change in residential land values in the neighborhood surrounding the Baker Chocolate Factory is evidence of the project having a positive economic impact, although it only shows the progression over a five-year span.

This increase in land values relative to the proximity of properties to the Baker Complex coincides with the 2002 opening of the adaptively reused Administration Building as 13 artist lofts. The project was spearheaded by the Department of Environmental Management, the property owner, and developed by Keen Development and The Architectural team, the same
developer and designer responsible for the initial redevelopment of the Baker Chocolate Factory. It is unclear the exact impact of this adaptive reuse project on residential property values, but it correlates with the timeline in which residential land values increased in the surrounding neighborhood.

2010

The 2010 regression produced very similar results to 2005, with a statistically insignificant P-value and low R-squared. The slope of the trend line on the scatterplot is almost identical, with a land values decreasing slightly as you move further from the Baker complex. One difference is that the average land value has actually decreased. This is likely the result of the real estate market crash which occurred not long before these assessments were conducted in 2009. However, it appears that the economic downturn had a proportional impact on the commercial properties around the Baker Chocolate Factory.
Similar to land values for commercial properties, the land values of residential properties followed a very similar pattern in 2010 to 2005. Once again, the regression produced a statistically significant P-value of 0.02, although a lower R-squared of just over two. The lower R-squared results from the observations being less concentrated around the trend line, which can be interpreted as the residential land values having a wider range than in 2005. The average land value for these residential parcels appears to also have dropped since the 2005 assessment, likely due to the real estate market crash. Despite the crash, this regression shows that land values for residential properties are still influenced in a positive way by proximity to the Baker Complex.
The regression of commercial property values in 2014 produces similar results. Although the slope of the trend line is steeper than in 2010, and the average property value has increased, the regression still produces results that are statistically insignificant. 2014 produces similar results for residential property values as well. The average property values sees a slight increase, while the impact of proximity to the Baker Chocolate Factory on residential property values appears to be about the same.
**Museum Square**

To analyze the impact of the Museum Square Apartments project on the surrounding area, I look at assessed land values and sales prices, although the City of Lawrence was only able to provide assessment data for 2009. With land value per acre as the dependent variable, and the distance from the project site as the independent variable, I perform the same regressions used to analyze the Baker Chocolate Factory project. While I am unable to measure the assessed values over time, these regressions can show the general pattern of land values in the neighborhood surrounding Museum Square. To measure the impact of the project over time, I use property sales data provided by the City. This data provides the price of the most recent sale for each property in the city, some dating back 30 or 40 years. As was described earlier, the sales prices within a quarter-mile of the project site are compared to sales in an area just past this quarter-mile point, and extending to a radius of one half-mile from Museum Square.

**2009 Assessed Land Values**

The results of this regression show little correlation between land value per acre and proximity to Museum Square. The P-value is very high at 0.5, nowhere near 95% confidence, and the R-squared is just 0.004. The trend line shows a slight downward slope, as land values...
decrease slightly as distance from the project site increases. However, the results of this model do not show any clear relationship between proximity to the Museum Square projects and the land value per acre of commercial properties. Additionally, it is important to note that the three commercial parcels that are closest to Museum Square appear to have particularly low land values, and there are two outliers with high land values approximately 200 meters from the site. These outliers may be skewing the trend line to have a negative slope, while the three properties closest to Museum Square indicate that land values may be lower closer to the project site.

While the regression model for residential properties produced slightly more statistically significant results, the P-value of 0.14 still was not within the 95% confidence interval. Interestingly, the trend line in the scatterplot has a positive slope, indicating that residential land values tend to increase as you move further from the Museum Square Apartments. The slope of this curve is even steeper when you include the land value per acre of the Museum Square Parcel. In fact, the Museum Square property appears to have one of the two lowest land values per acre out of the 39 residential properties within a quarter-mile radius. Although the regression does not produce statistically significant results, it is notable that land values for residential
properties appear to increase further from the project site. This is an indication that Museum Square has not had a positive impact on property values in the surrounding neighborhood, although I am unable to compare the 2009 data to assessment information from previous years.

As one can see from the scatterplot of residential land values, there is a large gap between the location of the Museum Square project and adjacent residential properties. There do not appear to be any strictly residential properties within 200 meters of Museum Square, but there are many parcels that are categorized as residential and commercial, or multi-use. To fill this data gap, I developed a separate scatterplot of multi-use properties that were not captured by the commercial or residential categories. This graph shows some relationship between proximity to Museum Square and land value, which contrasts with the prior scatterplots of residential and commercial properties. Interestingly, the three properties that are closest to the project site have relatively low land values per acre. There is a cluster of more valuable properties at approximately 150 meters from Museum Square, and land values appear to peak between 200 and 250 meters. This distance from the project site would place the properties somewhere around the main commercial part of Lawrence, along Essex St. It appears that there is more of a
correlation between the land value of these multi-use properties and proximity to the main commercial area than relative to the Museum Square Apartments.

Property Sales

Since the City of Lawrence was only able to provide assessment data for 2009, property sales data by year can provide an indication as to the change in prices around the Museum Square project over time. This graph displays the most recent sale price of each commercial parcel located within a quarter-mile radius of Museum Square, or within the area just outside of this radius, defined as the quarter-mile boundary extending to a radius of a half-mile. Not surprisingly, there is an overall increase in property sales prices, which can be inferred to be the effect of inflation and a general rise in property values over time. Interestingly, the slope is slightly steeper for the sale prices of properties within a quarter-mile of Museum Square. This implies that property sales prices have increased at a faster rate closer to the project site, hinting at a potential catalytic impact of the development.

However, there are a few factors that make such an inference problematic. First, it is important to look at when the sale of these properties took place. On average, commercial
properties within a quarter-mile of the project site were sold more recently than those in the outer area, with an average sale year of closer to 2005 and 2004, respectively. This can have the effect of artificially skewing the trend line of the "inner" sales prices upward, relative to the "outer" trend line. Additionally, there appear to be a few outliers in the scatterplot. The outliers for the quarter-mile radius around Museum Square show a particularly high sale price per square foot, and occurred in 2008 and 2010. The outlier for the outer area also has a very high price per square foot, but the sale occurred in 2003. The two outliers closer to Museum Square occurred after the average sale year, skewing the trend line to show a steeper positive slope. The outlier in the outer area had the opposite effect, altering the trend line to show a more horizontal distribution. Finally, there is a dearth of property sales data prior to 1997, leaving a nearly decade-long gap in information after the development of Museum Square. This is more likely an issue with the data file provided by the Lawrence Assessor than a lack of property sales during this time period. Considering these factors, it is difficult to infer that the Museum Square adaptive reuse project had a significant impact on commercial property values in the surrounding neighborhood.
For residential sale prices, the scatterplot produced two very different trend lines. Sale prices of properties in the area immediately surrounding Museum Square, despite being higher on average than sale prices in the outer area, actually appear to drop over time. This is likely the result of a small sample size of 22 observations, and two outliers in terms of sale price per square foot in 2000. The sale prices for residential properties in the outer area followed a more typical progression, with prices rising slightly over time. However, there were two property sales in the 1970s as part of this data set that are the only observations for more than twenty years. This is most certainly an issue with data collection, or the data set that was provided for this research, as it is highly unlikely that there were no residential property sales within a half-mile of Museum Square for more than two decades. However, these outliers should not significantly impact the trend line as there is a much larger sample size of observations for residential sales in the outer area.

Unfortunately, for the analysis of both commercial and residential property sales around Museum Square, there is a gap in the data between the late 1980s, when the project was developed, and the mid-1990s. Considering this data gap, there is still no indication based on the analysis of the existing property sales data that the Museum Square project has had a positive impact on property values in the surrounding community.
Francis Cabot Lowell Mill

The City of Waltham was only able to provide assessment data for 2014, but like Lawrence, they were able to provide data on the previous sale of each property in the city. Therefore, the analysis of the impact of the Francis Cabot Lowell Mill project on property values in the surrounding area is structured in the same way as the analysis of the Museum Square Apartments.

2014 Assessed Land Values

With a P-value of 0.055, this regression isn’t quite within the 95% confidence interval. However, there is a very visible trend that shows land values per acre for commercial properties increasing as proximity to the Francis Cabot Lowell Mill decreases. Unfortunately, with the lack of assessment data for prior years, it is difficult to imply any shift in land values over time. As I mentioned previously, academic research argues that proximity to vacant properties can depress property values, so it is certainly possible that the assessed values of parcels around the project
site were proportionally lower before the Mill was redeveloped. However, the results of this regression stand in contrast to the regression involving properties surrounding the Baker Chocolate Factory, where there was a positive relationship between land value and proximity to the project site.

The regression for residential land value per acre and proximity to the project site produced very similar results to those for commercial properties. The trend line shows a slight increase in land value as you move further from the Mill, and the P-value produced by the regression is not statistically significant. There does not appear to be much of a relationship between land value for residential properties and proximity to the project site.
The results from this analysis of commercial sales prices in the area surrounding the project site provide little support for the conclusion that the adaptive reuse of the Francis Cabot Lowell Mill has led to higher property values in the surrounding area. The scatterplot shows that the sales prices of properties in the outer area increased at a higher rate than those within a quarter-mile of the project site. While there were a few outliers, the difference in slope between the trend lines is significant enough that removing the outliers would not change the overall conclusions to be drawn. This scatterplot certainly provides an indication that the redevelopment of the Mill did not have a significant positive impact on surrounding property values, as sales prices in the outer area increased at a faster rate than those closer to the site.
The bar chart shown above expands on the analysis of commercial property sales around the Francis Cabot Lowell Mill. This graph focuses on the change in property sales prices in the six years prior to and following the development of FCLM, so it should provide a better sense of the immediate impact of the project on surrounding property values. More specifically, each bar represents the average sale price for properties within the areas defined as “inner” and “outer,” and the trend lines display the change in average sale price over time. While there is certainly a small sample size of property sales in this timeframe, only 40, the results provide no evidence that FCLM had an impact on property values immediately following development. Neither of these analyses support the notion that FCLM had a catalytic impact on adjacent commercial property sales prices.
Residential sales prices around the Francis Cabot Lowell Mill since the 1970s share a similar pattern to the commercial sales prices analyzed in the previous section. The trend line for property sales prices in the outer area is slightly steeper than for the inner area. Additionally, there does not appear to be a boost in sales prices of residential properties closer to the Mill after it was first redeveloped in the early 1980s. Prices rise in the late 1980s, but this was during an economic boom for the real estate market in Massachusetts. There is also a significant sample size for this analysis, so the confidence level in the results should be quite high. Once again, there is a lack of evidence that the Francis Cabot Lowell Mill adaptive reuse project had a noteworthy positive impact on property values in the surrounding neighborhood.
The analysis of residential property sales prices for the six years before and after the development of FCLM provides more reliable results, with a sample size of 222. However, the high average sale price in 1986 for properties within a quarter mile of FCLM may be an anomaly, as this represents the price of the only residential property sold that year. While there is a slightly increase in property sales prices for residential properties closer to FCLM based on this chart, this pattern is influenced by the single property sale in 1986. Looking at the first five years after the development of the Francis Cabot Lowell Mill, property sales do not appear to be increasing at a faster rate in the area closest to the adaptive reuse project.

**Conclusion**

The detailed quantitative analysis in this chapter presented interesting results regarding the impact of each case study on the revitalization of the surrounding neighborhood. Of the case studies, the Baker Chocolate Factory appears to be the only adaptive reuse project to have had a quantifiable impact on adjacent property values. Regressions of residential and commercial properties around the project show that land values increase in relative proximity to the Baker
Chocolate Factory Apartments. Considering academic research on the negative impact of vacant properties on adjacent property values, it is very likely that property values around the Baker Chocolate Factory have increased as a result of the adaptive reuse project in the mid-1980s. However, this quantitative analysis of property values is unable to tell the entire story of neighborhood revitalization. The next chapter presents the results of the qualitative research on the three case studies.
Chapter 5: Qualitative Research Findings

While the quantitative results discussed in the previous section are certainly important, as they provide statistical evidence of any long-term impact these adaptive reuse case studies have had on the surrounding neighborhood, qualitative research forms the core of this thesis. This qualitative analysis is key for understanding one of the main research questions through the three case studies, which asks **what are the factors involved in residential adaptive reuse that are associated with positive or negative long-term outcomes**. For each of the case studies, I conducted a number of interviews with project stakeholders, including developers, civic associations, nonprofit community organizations, property managers, financial institutions and local officials. In addition to the three main case studies, the Baker Chocolate Factory, Museum Square, and the Francis Cabot Lowell Mill, I draw insight from and comparisons with adaptive reuse initiatives in the Dudley Square Neighborhood of Boston and the City of Lowell. Key information was also extracted from a review of development documents and other materials related to the development and operation of these projects. This chapter discusses the qualitative research findings related to the long-term impact of the case studies, as well as key components of the development process that may have influenced the success of these projects as neighborhood catalysts.

**Baker Chocolate Factory**

**Project Impact**

Interviews with stakeholders supported the results of the quantitative analysis, that the adaptive reuse of the Baker Chocolate Factory has had a positive effect on the revitalization of the Lower Mills neighborhood. Bob Keuhn, the CEO of Keen Development who passed away a few years ago, was the initial redeveloper of buildings within the Baker Complex. His work in the field of historic preservation, adaptive reuse and affordable housing development in the Northeast is renowned, and he is considered a pioneer for the redevelopment historic structures. WinnDevelopment recently redeveloped the last remaining structure in the Baker Complex, the Baker and Power House Mills, into the market-rate Lofts at Lower Mills. In an interview with
Larry Curtis, the President of Winn Development, he emphasized the catalytic impact that Bob Keuhn’s initial adaptive reuse of the vacant property has had on the Lower Mills neighborhood, particularly in relation to the more recent adaptive reuse projects within the Baker Complex. He explained that the neighborhood was pretty rundown in the early 1980s when the Baker Chocolate Factory was still vacant, and that market rate housing would not be able to subsidize the cost of redeveloping any of the buildings (Curtis, February 2015). Combining historic tax credits with affordable housing tax credits, and accessing federal and city support, Keuhn was able to put together a financially feasible development plan for the Adams Street, Pierce and Preston Mills. According to Curtis, these initial affordable housing adaptive reuse projects paved the way for later market-rate development within the Baker Complex (Curtis, February 2015). In disinvested neighborhoods with weak markets like Lower Mills in the early 1980s, it is often affordable housing that is able to kick start revitalization and catalyze future investment.

Gary Tondorf-Dick was the Head of the Lower Mills Civic Association in the early 1980s when Keen Development was working on initial plans for the adaptive reuse of the Baker Chocolate Factory. He first bought a house in the neighborhood in 1976, and described some of the conditions of the area before and after the Baker Chocolate Factory Apartments were developed. First, Tondorf-Dick framed Lower Mills within a larger context of transitions happening in the Boston area. The 1970s were a time of “white flight,” when many middle-class, white families were moving out of Boston because of school desegregation bussing, and simply following national trends of suburbanization. Tondorf-Dick explained that Lower Mills was historically an Irish-American, working class community (February 2015). During this time period, many of the upper and middle-class white families moved to the suburbs, and poorer white families remained in the neighborhood (Tondorf-Dick, February 2015). The neighborhood was struggling economically in the late 1970s, before Keen Development invested in the Baker Complex in the early 1980s. Since the initial redevelopment of the Factory, Lower Mills has become much more diverse both demographically and economically. As Tondorf-Dick explained, there remains a portion of the historically working-class, Irish-American community, as well as a stronger minority presence and middle to upper class urban professionals (February 2015). While issues of gentrification are certainly a concern for the future of Lower Mills with the recent development of higher-end condominiums, the adaptive reuse of the Baker Chocolate Factory has certainly been a catalyst for investment in the surrounding neighborhood.
Development Process

Planning Initiatives

A key factor in the initial redevelopment of the Baker Chocolate Factory was the envisioning of a revitalization strategy for the Lower Mills Neighborhood. In 1979, the Boston Redevelopment Authority (BRA) commissioned a plan for the neighborhood, which was titled “Dorchester Lower Mills – An Urban Village in the 1980’s: A Revitalization Strategy.” The plan for the revitalization of the neighborhood focused on community involvement and preserving the historic character of the area as a means of improving social and economic conditions. The plan also identified the redevelopment of the Baker Chocolate Factory as a major opportunity, but emphasized that the “mills, however, should not be developed as an end in themselves” (Harrington, Keefe & Schork 1979). The authors continue to explain that the “mills can be the magnet which attracts attention, investment, and activity to the neighborhood’s principal commercial resource, the existing Business District” (Harrington, Keefe & Schork 1979). A major component of this revitalization strategy was the establishment of a Heritage State Park encompassing the Baker Complex. The Heritage State Park was a new program at the time that provided state funds for the redevelopment of a historic area to spur private investment and economic activity. The City of Lowell, well known for their initiatives related to historic preservation, successfully used the Heritage State Park program.

The Baker Chocolate Factory area never became a Heritage State Park, and many components of the 1979 plan for Lower Mills were never achieved. However, the plan was indicative of and likely played a role in forming momentum for redevelopment in Lower Mills. It reflected the potential for public and private investment in the area, and provided some real strategies for improving stability and economic conditions in the neighborhood. While the development of the Baker Chocolate Factory Apartments was not officially part of this neighborhood strategy, the project benefited from this early planning work by the BRA.
Community Involvement

The Dorchester Lower Mills Revitalization Strategy discussed in the previous section emphasizes community involvement in the process for revitalizing the neighborhood. The plan explicitly states that “its purpose will be achieved if it fosters neighborhood pride and generates cooperation and action, from the bottom-up, to improve the neighborhood’s physical appearance and economic well-being” (Harrington, Keefe an Schork 1979). This community involvement was realized during the development process for the initial adaptive reuse of the Baker Chocolate Factory by Keen Development. Gary Tondorf-Dick, the Head of the Lower Mills Civic Association at the time, was involved in many discussions with the lead developers of the project and the Boston Redevelopment Authority (Tondorf-Dick, February 2015). Looking back on these discussions, Tondorf-Dick felt as though there was good communication between the community and the developer, despite very different points of view (February 2015). According to Tondorf-Dick, the existing Lower Mills community was able to achieve much of what they wanted, including preserving a number of the affordable housing unit in the Baker Chocolate Factory Apartments for current neighborhood residents (February 2015). Community involvement was a strength of the initial redevelopment of the Baker Chocolate Factory, as they were able to achieve local support for the project.

Project Financing

Adaptive reuse projects in low-income neighborhoods often require complicated financing approaches, and the initial Baker redevelopment followed this trend. A number of financing decisions and techniques played a role in strengthening the short and long-term viability of the Baker Chocolate Factory Apartments. First, since the complex was designated as a national historic site, it gained access to Federal Historic Tax Credits. This unlocked more capital for the project and helped prevent Keen Development from investing too much of their own equity. The project also acquired a UDAG loan through the City of Boston, which was provided at low interest rate. This ensured some level of subsidy for low and moderate-income units in a neighborhood that, at the time, did not have a strong real estate market.
It was a smart decision on the part of the developers to combine historic tax credits with rent restrictions, not just for the long-term financial feasibility of the project, but also to help achieve support from the community. As Gary Tondorf-Dick mentioned, the Lower Mills Civic Association was pushing for the preservation of some affordable housing units for existing residents of the neighborhood. Keen Development was able to provide affordable units by participating in the UDAG program, and through an escrow agreement with the City of Boston that preserved the affordability of the development. In order to receive a UDAG loan from the City, the developer agreed to reserve 15% of the units for low and moderate income tenants, and that no tenant could have an income exceeding 120% of the Boston area median income. The developer was provided the option of ending the affordability restrictions through the City of Boston after 10 years, provided that their loan from the Massachusetts Industrial Finance Agency (MIFA) was paid off. However, Keen Development ended up refinancing in the 1990s and affordability restrictions remain today. The reasons why the developer has not converted the building to condominiums are not entirely clear, but it could be due to a sense of commitment to the community, financing issues, pressure from the City of Boston, or significant fees required by the City for the conversion of the property. According to Fairfield Residential, the real estate management company who purchased the property in 2014, the affordability restrictions require 20% of the units to be set aside for households earning 60% of the area median income (AMI) and 7 units reserved for those earning 80% AMI.

The Baker Chocolate Factory Apartments also benefited from decisions made by the City of Boston related to loan payments. For example, in 2006 the City of Boston agreed to postpone any payments due from the UDAG loan until the MIFA and Bank of America loans were paid. They also capped the total indebtedness due on the UDAG loan at $1.8 million. It appears that the City of Boston was invested in the long-term success of the Baker Chocolate Factory Apartments. It was clear from the revitalization plan for Lower Mills commissioned by the BRA in 1979 that the City viewed the Baker Chocolate Factory as a valuable asset for the surrounding community.

The financial success of the initial adaptive reuse of the Baker Chocolate Factory is reflected in the recent sale of the property to Fairfield Residential, as well as earlier appraisals of the Apartments. In 2005, an appraisal report valued the Baker Chocolate Factory Apartments at nearly $13 million, if the property were purchased for continued operation as an apartment.
complex. The same report estimated the property to be worth $33.5 million in gross retail sales if the units were converted to condominiums. The Baker Apartments were sold to Fairfield Residential in 2014 for over $24 million after Beacon Communities had managed the property since 2008 and made some significant upgrades. This is quite an increase from the development costs of the project in the mid-1980s, which totaled about $9 million, and also compared to the initial purchase of the vacant property by Keen Development for about $900,000. The increase in value of the property is indicative of the catalytic impact that the initial adaptive reuse of the Baker Chocolate Factory has had on the Lower Mills neighborhood.

Quality of Historic Structure and Rehabilitation

The aesthetic quality of adaptive reuse, as well as its historical significance, must be taken into account when considering the catalytic impact of a redevelopment project. In an interview with Sean McDonnell of the Architectural Heritage Foundation, a Boston non-profit historic preservation firm that recently redeveloped Washington Mills in Lawrence, emphasized the importance of design and aesthetics for adaptive reuse projects. In the context of Lawrence, he made the point that you are not going to attract people to these areas unless the adaptive reuse product is attractive (McDonnell, March 2015). The Baker Chocolate Factory Apartment has been recognized at the state and national level as a model for historic preservation. The Architectural Team (TAT), the design firm that worked on the Baker Chocolate Factory Apartments, was presented with the National Historic Preservation Award for the project in 1988. This initial Baker redevelopment also won a Preservation Award from the Massachusetts Historical Commission in 1986. The quality of the adaptive reuse of the Baker Chocolate Factory by Keen Development and TAT almost certainly contributed to the success of the project in spurring additional investment in the Lower Mills area.

In addition to the high quality rehabilitation of the property, this initial adaptive reuse project benefitted from the history, local prominence and possibly the “good bones” of the structure. The Baker Chocolate Factory has unique architectural elements that were part of the original design of the complex. The structure has more intricacies and design elements than many of the former textile mills found in places like Lawrence and Lowell. While these unique architectural elements are not necessary for successful adaptive reuse projects, they may have
provided an advantage for the original developer of the Baker Chocolate Factory. When these structural advantages are combined with the strong history of the Walter Baker Chocolate Company, as well as the local prominence and central location of the complex, it appears that the Baker Chocolate Factory apartments had a promising future and the potential to have a significant impact on the surrounding community.

**External Factors**

**Location**

Unrelated to the development process, the geographic location of Lower Mills is another factor that has enabled the Baker Chocolate Factory redevelopment to have a strong impact on the surrounding community. First, the neighborhood is located within Boston, although on the far southern edge of the city, and has easy commuting access to jobs in the downtown area. The presence of a Red Line subway stop just across the river from the Baker Chocolate Factory made Downtown Boston even more accessible. After the initial adaptive reuse of the Baker Apartments, this proximity to employment may have increased demand for the apartment units among working professionals.

The Lower Mills neighborhood is also located adjacent to the suburb of Milton. In fact, some of the structures that make up the Baker Chocolate Factory Complex are located in Milton, although they have not been redeveloped as residential. Milton has historically been a wealthier community than the southern part of Dorchester. In 1980, the median income in the two Milton Census Tracts that border Lower Mills was approximately $22,500 and $25,800, compared to $17,600 and $15,900 in the adjacent Boston Census Tracts (US Census, 1980). This income dichotomy is even more significant today, with median incomes of over $100,000 in both Milton tracts, compared to only $50,000 and $68,000 in Lower Mills. The proximity of the Lower Mills neighborhood to the wealthier Town of Milton is relevant because it represented an opportunity to access the relative purchasing power of Milton residents. The Baker Chocolate Factory Apartments could have attracted middle income residents of Milton, helping to initiate the revitalization of the commercial part of Lower Mills that has grown significantly in the past 30 years. This proximity to a customer base that can support commercial activity is an advantage.
for a neighborhood revitalization project. Although it is not clear how significant of a role this played in the economic revitalization of Lower Mills, it represented an opportunity for the initial adaptive reuse of the Baker Chocolate Factory, one that was not present for redevelopment projects in communities like Lawrence.

Future Concerns

Gentrification and Displacement

The Baker Chocolate Factory and the neighborhood surrounding it have come a long way since the disinvestment that occurred in the early 1980s. With the revitalization that has taken place in Lower Mills, gentrification is a real concern moving forward. The recent adaptive reuse project by Winn Development within the Baker Complex, the Lofts at Lower Mills, created 58 luxury condos, signaling a strong market for housing in the area. In an interview with Larry Curtis of Winn, he even mentioned that gentrification was a community concern in the neighborhood, particularly with affordability requirements burning off for buildings like the Baker Chocolate Factory Apartments (Curtis, February 2015). The 2005 appraisal report of the Baker Chocolate Factory Apartments highlights this risk. This report valued the building at $33.5 million if it were to convert to condominiums, compared to $13 million as it is currently operated. While the Baker Apartments continue to operate with 20 percent of the units preserved as affordable, it is unclear how long this will last. According to documents related to the sale of the Baker Chocolate Factory Apartments, the affordable housing units will be eligible to transition to market rate in 2018.

Museum Square Apartments

Project Impact

The qualitative research related to the adaptive reuse of Museum Square provided very similar results to the quantitative analysis of neighborhood property values and sales prices, that the project has had little long-term impact on the surrounding area. Museum Square Apartments
was completed in 1989 by the Boston Land Company, a Massachusetts developer with experience in historic preservation and adaptive reuse. Robert Kargman, the CEO of the Boston Land Company, explained that at the time the Museum Square project was developed, the City of Lawrence was struggling and in dire need of an economic boost. However, Kargman stated that the Museum Square Apartments did not end up representing this economic boost, having little catalytic impact on the surrounding neighborhoods. There are a number of reasons for this, which will be addressed in further detail later in this Chapter.

When asked about the long-term impact that Museum Square has had on the surrounding community, several additional interviewees reiterate the sentiments expressed by Kargman. Also with the Boston Land Company, the Director of Property Management, Susan Kelly, was skeptical of any catalytic impact that the Museum Square Project has had. According to Kelly, the project has struggled financially since it was developed in 1989, and has acquired a bad reputation (Kelly, March 2015). She explains that the project certainly suffered from some external factors, including high crime rates and a poor housing market, but there were additional missteps on the development side (Kelly, March 2015). Maggie Super Church is the former Executive Director of Groundwork Lawrence, a local nonprofit and community organization, as well as former Project Director at Lawrence Community Works, a local community development corporation. Super Church agrees that project has failed to produce economic spillovers, and that the evolution of the project over the years has been unsuccessful in a number of ways (Super Church, March 2015).

After it was completed in 1989, Museum Square Apartments became the first large-scale residential adaptive reuse project in Lawrence, and it would be another 15 years before the next residential mill conversion within the City. It is difficult to argue that Museum Square had a catalytic impact in terms of inspiring similar redevelopment in Lawrence, since it would be more than a decade before the next residential adaptive reuse project. At the same time, Kristen Harol, the former Deputy Director of Lawrence Community Works, argues that it is difficult to say that Museum Square has had no impact (Harol, March 2015). She mentions that the parking lot developed as part of the Museum Square project has benefitted some residents within the neighborhood, including tenants at the recently redeveloped Washington Mills (Harol, March 2015). However, the City of Lawrence has not received any parking payments from Museum Square residents since the parking lot was developed (Harol, March 2015). This is the result of a
contested agreement between the Museum Square developer and the City, in which Museum Square residents were to receive free parking until the project became profitable (Barnes, April 2015). While the project did not live up to expectations, it was still a forward-thinking endeavor, being the first attempt to use the historic mills of Lawrence as an asset to produce housing.

However, it appears that Museum Square has become somewhat of a forgotten project, possibly due to its minimal impact on the revitalization of the surrounding neighborhood. Harol explains that the project was not on her radar while she was working at Lawrence Community Works (Harol, March 2015). The remainder of this section of Chapter 4 details the factors that contributed to the struggles of Museum Square and its lack of catalytic impact on the surrounding community.

Development Process

Community Involvement

The Museum Square project appears to have included little involvement from neighborhood residents or community groups. Rather, most of the decision-making for the project resulted from conversations between the city government and the developer. According to an interviewee, much of the discussion between the City of Lawrence and the Boston Land Company focused on a parking lot that was to be developed along with Museum Square (Barnes, April 2015). Additional discussion between the city and the developer related to the proportion of market-rate units at Museum Square (Barnes, April 2015). While these conversations had implications for project funding and neighborhood amenities, like parking, a community perspective on needs and priorities for revitalization was largely absent.

In recent years, adaptive reuse initiatives in Lawrence have emphasized community involvement, beginning with the Reviviendo Gateway Initiative (RGI). RGI was a community planning process that took place between 2002 and 2003 led by local nonprofits involving “hundreds of residents, mill and business owners, and public officials” (Lawrence Community Works). This process produced a local vision and development priorities, and eventually led to a major zoning reform that opened an entire mill district to mixed-use development with minimum requirements for affordable housing (Lawrence Community Works). The RGI process engaged
the Lawrence community and sparked an interest in adaptive reuse within the North Canal Mill District. Washington Mills was the first mill conversion undertaken within the new Reviviendo overlay zone (McDonnell, March 2015). This project helped to spark a number of other mills in Lawrence “to prepare redevelopment plans, or to make improvements to business space” (Miller 2012). In 2007, Lawrence Community Works initiated a plan for Union Crossing, which involved the redevelopment of a series of mill complexes in the North Canal District. Once complete, Union Crossing will include 131 affordable housing units and 90,000 square feet of commercial space (Miller 2012). The recent success of these initiatives in Lawrence demonstrates the importance of community involvement and stakeholder engagement, something that was absent during the development process for Museum Square.

Financing

Similar to many adaptive reuse developments in low-income areas with weak housing markets, Museum Square had a very complicated financing structure, making use of a variety to subsidies to help create a more financially feasible project. The financing for the Museum Square project was even more complicated than the Baker Chocolate Factory. This could have been for a number of reasons, including the significantly higher development costs of over $24 million, or the weaker housing market in Lawrence at the time. While innovative financing was certainly a necessity to make the Museum Square project work, certain financing decisions have contributed to the financial struggles of the project, and the many subsidies may have masked issues of long-term viability.

Museum Square became one of the later projects to be a part of the Massachusetts SHARP program, a state subsidy program for affordable rental housing that ended in 1990. SHARP was intended to provide a subsidy that would “bridge the gap between a) the cost of permanent financing of multi-family rental housing projects by means of MHFA tax-free bonds and b) the rental income generated by the projects” (Brecher 1986, 5). Unfortunately, as the housing market in Massachusetts cooled in the early 1990s, many of the properties financed through SHARP have had significant financial issues (McCall & Almy Inc. 1997, 2). The SHARP program relied on the assumption that operating incomes for these properties would improve steadily each year, as subsidies would gradually decrease (McCall & Almy Inc. 1997,
Eventually, certain properties were unable to make their annual debt service payments, and the assumptions made by the SHARP programs and developers who participated in the program became unrealistic (McCall & Almy Inc. 1997, 6). For many of the projects that participated in the SHARP program, including Museum Square, the subsidies did not end up providing enough support, and these properties as well as the MHFA ran into financial difficulties.

Susan Kelly, the current Director of Property Management with the Boston Land Company, was very open about the financial struggles of the Museum Square adaptive reuse project. She mentioned a particular subsidy that Museum Square Apartments was receiving until Governor Mitt Romney ended the program during his tenure in office (Kelly, March 2015). According to Kelly, this program provided the project with $100,000 in subsidy each year, and when it was lost, Museum Square was never able to recover (Kelly, March 2015). She also cited a change to the way that HUD calculated rents as having a negative impact on the project. This change, which occurred in the 1990s, involved HUD calculating rents based on a market assessment of the area surrounding a project, rather than an automatic rent increase (Kelly, March 2015). This lowered the level of rental subsidy that Museum Square received from HUD.

Kelly feels as though the financial struggles of Museum Square has affected Boston Land Company’s ability to manage and maintain the project. Over the years, there have been issues with the façade of the building, structural issues, and ongoing maintenance. She believes that many of these issues resulted from the lack of necessary funding to adequately maintain Museum Square Apartments (Kelly, March 2015). Kelly felt as though the development and its financing were risky from the start, but that there were many poor decisions made early on in the management of Museum Square (Kelly, March 2015). Perhaps part of the reason for the failure of Museum Square to impact the revitalization of the surrounding community was the poor maintenance and condition of the building over the years. In that case, the financing structure of the project contributed to its financial difficulties, and also hindered its ability to have a positive economic impact on the surrounding neighborhood.

*Unit Mix and Marketing*

There was a decision made on the part of the developer of Museum Square Apartments to include a significant number of market rate units, a higher proportion than the Baker Chocolate
Factory Apartments or the Francis Cabot Lowell Mill. Upon completion, the Museum Square Apartments consisted of 176 units, 130 of which were market-rate, and 46 of which were designated as low-income. While there were certainly a number of subsidies that Boston Land Company was able to acquire for the project, it became clear that the market in Lawrence was too weak to support market-rate units. From the perspective of the developer, it appears that they foresaw the Museum Square project playing a role in the revitalization of the surrounding area, making it a more competitive housing market. On the other hand, it is possible that the developer saw an opportunity with the large amount of federal and state investment coming to Downtown Lawrence, and Museum Square was an attempt to capitalize on this potentially growing market. This thought process is evidenced by the following quote from original marketing documents for the Museum Square Apartments:

And you can join this renaissance at Museum Square. As you watch the changes taking place in the coming months from your new home at Museum Square you will know that you have taken part in one of the most exciting urban revitalizations in Massachusetts history

The Museum Square project did not have the intended catalytic impact on the surrounding area, and the unit mix that included significant market-rate housing became a challenge. The following quote from Museum Square marketing documents further emphasizes the mismatch between the intended tenants and the housing market in Lawrence:

Enjoy the vitality and spirit that is Museum Square. From the moment you enter our beautifully appointed promenade lobby, you are welcomed to a setting of unsurpassed elegance and distinction which blends the tradition of historic architecture with the best in contemporary design adore the sweeping panoramic views from the grand living and entertaining areas. Swim in our rooftop lap pool or spend a summer afternoon on the sundeck. Our concierge is always available to assist you, and our fully equipped health club is a welcome reward at the end of the day. And at Museum Square, you will be taking part in the revival of Downtown Lawrence. Shop at Ralph Lauren’s Polo or at Kap’s, and enjoy fine dining at Bishop’s or Metamorphosis. You can sail the Merrimack at Pemberton Park or stroll past the Robert Frost Fountain on the Common. Be a part of it all – Come Live in a Renaissance.
This quote clearly demonstrates the demographic that the developer and property management team was trying to attract to Museum Square. It is also important to consider the additional costs to a project of creating luxury amenities, like a rooftop pool. These additional costs could have been avoided with less of an emphasis on luxury, market-rate units, and the project may have experienced fewer financial challenges in the future.

While the developer of the project certainly misread the market by focusing on a higher income tenant-base for a significant portion of the Museum Square units, the City of Lawrence appears to have been pushing for more market-rate units at the time. James Barnes, the current Director of the Lawrence Community Development Department, emphasized the City’s involvement in pushing for Museum Square to provide more market-rate units. Interestingly, he also discussed the transformation of Museum Square to become more of a subsidized development than the city had intended. James Barnes mentioned that many of the units in the building came to be occupied by Section 8 tenants, which continues today (Barnes, April 2015). Kristen Harol also argued that the Museum Square project has received quite a bit of subsidy over the years, with a large HODAG grant and high voucher numbers (Harol, March 2015). Presumably, much of the shift to subsidized housing in Museum Square Apartments is due to the difficulties in successfully filling the market-rate units. It is clear that both the City of Lawrence and the Boston Land Company overestimated the market for the area around Museum Square when it was first developed, as well as the project’s ability to revitalize the surrounding neighborhood.

_Design and Historical Significance_

While the Baker Chocolate Factory was highly-regarded for its rehabilitation and architecture, the Museum Square Apartments has not received such accolades. While visiting the site, I was surprised by the style and façade of the building, as it did not have an immediate historic feel to it. In contrast to the Baker Chocolate Factory and the Francis Cabot Lowell Mill, the Museum Square project is actually an adaptive reuse of a storage facility. While it is located close by to the large mills of Lawrence, Museum Square, which is a rehabilitation of the Morton building, was primarily used as a storage facility for raw bales of cotton. While the project was marketed as a building of historic elegance and charm, Museum Square does not evoke the same
feelings of historic significance as the mill buildings that surround it. This is not to suggest that the Boston Land Company should have attempted to redevelop one of these large mill buildings instead, as such a project at the time would certainly have faced similar financial barriers and would have been a much more substantial undertaking.

An additional issue related to the design of Museum Square is its lack of interaction with the street and the surrounding area. Of course, as I mentioned previously in this section, the project was designed with many luxury elements, including a rooftop pool, intended to attract higher income tenants to the building. For tenants that ended up renting the market-rate units, there is a parking lot right next to apartment building that was developed as part of the Museum Square redevelopment. Tenants are able to go from their car directly to their residence without interacting at all with the surrounding neighborhood. It is possible that this amenity was attractive to many prospective tenants, but it hindered the projects ability to have positive spillover effects. Maggie Super Church expressed similar issues with the interaction of Museum Square with the surrounding area. She explained that it has little presence on the street and feels like a gated community, and that it is not particularly welcoming from a design standpoint (Super Church, March 2015). These design and aesthetic challenges appear to have played a role in preventing the Museum Square project from initiating any significant neighborhood revitalization.

External Factors

Location

While the geographic location in relation to Downtown Boston of the Baker Chocolate Factory played to its advantage, it had the opposite effect on the Museum Square project. Lawrence is an old industrial town on the Merrimack River, located nearly 30 miles north of Boston. As was noted earlier in this Chapter, the Museum Square Apartments included a significant number of market-rate units that were marketed toward a middle and upper-income demographic. It makes sense that the developer would expect a portion of these tenants to commute to jobs in Boston, and the development of an adjacent parking garage was further evidence of this expected tenant-base. Lawrence also has one commuter rail stop located within
the city that serves as transportation to Boston. When Museum Square was constructed, during a real estate boom in Massachusetts, there may have been demand for commuter housing as far away from Boston as Lawrence. However, once the real estate market started to dip not long after the project was developed, there was little demand for luxury market-rate units in Lawrence like those offered at the Museum Square Apartments. Kargman, the developer of Museum Square, also saw the proximity of the project to Downtown Boston as a barrier to success. He felt as though Lawrence had a difficult time competing with other cities, including Lowell, which has a successful history of historic preservation and is slightly more geographically advantaged in relation to Boston (Kargman, February 2015).

However, it is important to note that Museum Square was not only marketing to tenants that would be commuting to jobs in Boston, as evidenced by the following quote from a market analysis conducted by the Real Estate Analysis Group prior to project development:

*The growing employment centers along I-495 and I-93, coupled with a lack of new rental construction, strongly suggests pent-up demand from young professionals employed in the local manufacturing, service, financial and government sectors.*

It is unclear whether Museum Square was successful in attracting this demographic. The economic downturn in Massachusetts in the early 1990s may have prevented growth among these employment centers, and therefore limited the ability of Museum Square to secure these tenants.

On a smaller scale, the neighborhood context of Museum Square may have made it difficult for the project to have local spillover effects. Directly south of the project site is the North Canal area, which at the time was characterized almost entirely by vacant mill buildings, although in recent years some of these structures have been adaptively reused. Two blocks north of Museum Square is Essex St., which is the main commercial street within Lawrence, so there was some potential for economic spillovers into this area. However, compared to the Baker Chocolate Factory, which is surrounding by a dense residential community, a commercial area, and significantly fewer abandoned buildings, the potential spillover effects of Museum Square were hindered by its local geographic context.
The economic downturn in the late 1980s and early 1990s in Massachusetts contributed to the financial difficulties experienced by the Museum Square project, and ended up hindering the revitalization of the surrounding neighborhood. This graph shows the inflation-adjusted house values in Boston since 1987. While Museum Square is not located in Boston, similar housing market trends are seen throughout the Greater Boston Area. It is clear that the housing market was at its peak when Museum Square was under construction in 1988. By the time the project opened in 1989, the market for housing was dropping significantly, and continued to drop until it stabilized in 1991. As Kristen Harol explains in her interview, the Lawrence economic got hit hard in the early 1990s, which probably impacted the Museum Square project (Harol, March 2015).

With the collapse of the real estate market so soon after the project was developed, Museum Square was not able to achieve the rental income that they had projected during the strong market prior to construction. Exacerbating the situation is that the project was structured
in a way that anticipated a revitalization in the area around Museum Square, leading to a stronger housing market and higher values. This is exemplified by the following quote from initial marketing documents for Museum Square:

*Through great vision and bold determination, the founders of Lawrence turned a modest town into the greatest single American enterprise of its time. With that same spirit, the leaders of Lawrence are now spearheading a broad revitalization of the downtown area. In the coming months, over $50,000,000 will be poured into a six block area from Mill to Lawrence streets. And Museum Square is in the heard of it all.*

Even certain financing and subsidies for the project relied on future rent increases and a strengthening of the housing market. The SHARP subsidies that were discussed earlier in the chapter were to be provided to the Museum Square project over the course of 15 years. However, after the first five years, the operating loans provided by SHARP would continuously decrease until the subsidy would end entirely in a maximum of ten years. This financing structure introduced additional difficulties to Museum Square after the real estate market downturn of the early 1990s, further limiting the catalytic impact of the project on the surrounding neighborhood.

*Francis Cabot Lowell Mill*

*Project Impact*

The catalytic impact of the adaptive reuse of the Francis Cabot Lowell Mill likely stands somewhere between the Baker Chocolate Factory Apartments, which contributed to the revitalization of Lower Mills, and Museum Square, which struggled financially and had very minimal impact on the surrounding community in Lawrence. The results of the quantitative analysis did not suggest that the project had much of an economic impact on the surrounding area, based on the proportional increase in property sales prices in the “project neighborhood” compared to adjacent areas. However, multiple developments close by to FCLM and demographic changes within the Census Tracts encompassing the property suggest that there may have been positive spillovers over the years.
When comparing certain socioeconomic trends since 1980 between the Census Tracts around the Francis Cabot Lowell Mill and Waltham as a whole, the neighborhood around the project appears to have experienced positive social and economic change. The median family income in 1980, around the time when FCLM was being developed, was $15,190 in Census Tract 3685 and $20,457 in Tract 3688, compared to $22,335 for the City as a whole (US Census, 1980). In 2013, this median family income had increased to $72,245 and $83,382 in Tracts 3685 and 3688, compared to $87,175 for all of Waltham (5-year ACS, 2013). The percentage increase in median family income in the Census Tracts around the Francis Cabot Lowell Mill is significantly higher than for the City of Waltham overall, at 476% and 408% compared to 390 percent. This indicates a level of economic revitalization around the project, although one cannot assume this was simply the result of the adaptive reuse of the Mill.

The adaptive reuse of the Francis Cabot Lowell Mills into 258 residential units by the Boston Land Company in the late 1970s and early 1980s was the main project for the mill complex. However, there have been additional adaptive reuse project of other buildings on the same site since the redevelopment of FCLM. For example, two of the buildings within the complex provide studio space for the members of the Waltham Mills Artists Association. Building #4 houses 56 artists and Building #18 provides space for 16 additional artists. Other properties within the complex now provide office space, and Building #15 has been rehabilitated to provide 8 loft-style apartments. Outside of the mill complex, there was a significant real estate development just across the Charles River which opened in 1998, known as Cronin’s Landing, which created 281 market rate residential units. Robert Kargman, the head of the Boston Land Company, is skeptical as to whether Cronin’s Landing would have occurred without the adaptive reuse of the Francis Cabot Lowell Mill over a decade earlier (Kargman, February 2015). These later developments, particularly the adaptive reuse projects within the FCLM complex that occurred soon after the project was completed, indicate some catalytic impact. While the economic spillovers may not have reached the level of the Baker Chocolate Factory, the FLCM project certainly appears to have had a more positive impact than Museum Square. The remainder of this section discusses and analyzes the factors that influenced the long-term success and impact of the Francis Cabot Lowell Mill project.
Development Process

Financing

According to Robert Kargman, a key moment in the development process that made the project financially feasible was when the entire site was designated as historic by the National Historic Register (Kargman, February 2015). Upon the initial purchase of the property, only a portion of the project was certified as historic, and the development team pushed the National Park Service to accept their application for full certification. Their application was accepted, which opened up FCLM fully to the Federal Historic Preservation Tax Incentives program, and also made the project more desirable to investors (Kargman, February 2015). The benefit of Federal historic tax credits was also available to the Baker Chocolate Factory, but not to the Museum Square project as it was not included in the National Historic Register.

Another major factor that contributed to the financial feasibility of the project was its participation in the Neighborhood Strategy Area Demonstration Program (NSA). The following is an overview of the NSA Demonstration from a 1982 report, titled “The NSA Demonstration: A Case Study of Local Control over Housing Development:"

The Neighborhood Strategy Area (NSA) Demonstration was established by HUD in 1978 to strengthen local neighborhood revitalization efforts by giving local governments control over Section 8 substantial rehabilitation allocations for use in designated target neighborhoods. In return, cities were to develop a detailed revitalization plan for these neighborhoods and propose a revitalization strategy which combined housing and community development resources, both public and private, in a mutually supportive way that would ensure that all of the neighborhood’s revitalization needs would be met during the five year Demonstration period.

The City of Waltham clearly felt as though the redevelopment of the Francis Cabot Lowell Mill would contribute to the revitalization of the surrounding neighborhood, as they awarded the project with Section 8 subsidies through the NSA Demonstration. Both phases of the adaptive reuse project received these awards, and FCLM benefited from consistent financial assistance through the Section 8 program.
Interestingly, the 1982 report on the NSA Demonstration found that “neighborhood conditions surrounding completed Section 8 projects showed considerable improvement during the Demonstration period” (Urban Systems Research and Engineering Inc. 1982). While this provides no hard evidence as to the economic spillovers from the adaptive reuse of the Francis Cabot Lowell Mill, it further supports the notion that the surrounding neighborhood may have benefited from the redevelopment project.

Tenant Population

The population of tenants within the Francis Cabot Lowell Mill introduces an interesting factor when considering the potential economic impact of the project. As the previous section describes, the project houses Section 8 tenants through its initial participation in the NSA Demonstration. Additionally, the 258 units in FCLM are reserved for elderly and disabled residents, for which the property management team provides specialized services and care. Kargman explains that the initial decision to make FCLM an elderly and disabled development was the result of parking requirements related to zoning (Kargman, February 2015). At the time, the number of parking spots required per housing unit was lower for elderly projects, and according to Kargman, developing FCLM as a building for elderly and disabled residents was the only way to construct the number of units required to make the project financially feasible (Kargman, February 2015).

While the redevelopment of FCLM as elderly housing made the project more financially secure, this decision may have limited potential economic spillovers. South of the project site is the Moody St. corridor, which one of Waltham’s main commercial areas. A residential development the size of FCLM, which included 258 units, could help to spur commercial growth in the surrounding area by bringing additional consumers. However, the FCLM serves a population of low-income, elderly or disabled individuals that are less able to frequent the adjacent commercial area. Additionally, the project provides specialized care and amenities for their residents that replace the need leave the development for these services.

As the tenant population is unlikely to contribute to the revitalization of the area surrounding the Mill because of a lack of spending power, the catalytic impact of the adaptive reuse of FCLM must be conceived in other ways. A large-scale development project like the
Francis Cabot Lowell Mill can trigger similar investments in the surrounding area. As was mentioned in the previous section, the remaining buildings within the mill complex were redeveloped after the adaptive reuse of FCLM. Once developers and lenders recognize that development is profitable and feasible in a particular neighborhood, they will be willing to invest in this area. By all accounts, the FCLM project appears to be a financial success, something that may have been recognized by the developers of the other mill buildings within the complex, and possibly even the nearby Cronin’s Landing.

Design and Historical Significance

Similar to the Baker Chocolate Factory, the Francis Cabot Lowell Mill is a site of noteworthy historic architecture and significance. The FCLM buildings are among particular significance to the development of the United States economy during the industrial revolution. The buildings were the first constructed by the Boston Manufacturing Company in 1814, led by Francis Cabot Lowell, who developed the country’s first working power loom (National Park Service). In 1977, the Boston Manufacturing Company, which would become the Francis Cabot Lowell Mill development within the next few years, was named a National Historic Landmark by the National Park Service. The Mill now houses the Charles River Museum of Industrial Innovation, which holds exhibits on the Boston Manufacturing Company and serves as space to host events like weddings and award ceremonies.

In addition to the significant history of FCLM, the structure serves as a visual landmark for the surrounding community. Compared to Museum Square, which was also developed by the Boston Land Company, FCLM has the notable architecture that one would associate with a historic textile mill. The architect for the initial adaptive reuse of the project, The Architectural Team, also designed the redevelopment of the Baker Chocolate Factory, a project for which they won numerous awards. The historical significance and architecture of the former Boston Manufacturing Company presented the developer with an opportunity that was not available for the Museum Square Project in Lawrence. Similar to the Baker Chocolate Factory, the Francis Cabot Lowell Mill stands out within its neighborhood context, and can serve as a visual anchor for the surrounding area, as well as a draw for people who want to visit or live nearby to a building with such historic presence.
External Factors

Location and Neighborhood Context

The Francis Cabot Lowell Mill is located in the City of Waltham, which is about 11 miles west of Boston. There are a number of locational advantages to the project compared to Museum Square, although these are somewhat mitigated by the fact that FCLM is not market-rate and limited to elderly tenants. Waltham is located right at the intersection of two major highways, Interstate 90 and Route 128. While I-90 provides quick access to jobs in Downtown Boston, the Route 128 Corridor is well known for emerging as a major hub for high-tech businesses during the 1980s as part of the “Massachusetts Miracle.” Additionally, Waltham is home to a couple of elite academic institutions, Brandeis University and Bentley University. Compared to Museum Square, the Francis Cabot Lowell Mill was located in an area with much more potential for economic development. While the tenants of FCLM were unlikely to participate in this growth, this market potential created more opportunities for development projects in the surrounding neighborhood that were catalyzed by the initial adaptive reuse of the Mill.

It is also important to consider the local context, both geographic and socioeconomic, of the Francis Cabot Lowell Mill, and how this may have enabled, or prevented, the project to have a more significant impact. Despite the relatively central location of FCLM, close to downtown and across the river from the Moody St. commercial corridor, it is fairly isolated in terms of pedestrian access and adjacent activity. While the Baker Chocolate Factory Apartments have direct street access and are located at the very center of the Lower Mills commercial area, the FCLM Complex is bound by the Charles River to the south and railroad tracks to the north. The project site is bound by Moody St. to the west, but one has to continue down Moody St. and cross a bridge before reaching the commercial area. The remaining industrial buildings within the Boston Manufacturing Company complex do not face these geographic barriers, and have all been adaptively reused since the development of the Francis Cabot Lowell Mill project. While it is unclear whether the spillover effects of FCLM were limited by its isolation, the project certainly did not have the same opportunity as the Baker Chocolate Factory Apartments in terms of proximity to commercial activity and dense residential development.
Socioeconomically, the area around the Francis Cabot Lowell Mill was much more similar to the neighborhood surrounding the Baker Chocolate Factory than Museum Square. In 1980, the median family income in the Census Tracts comprising the neighborhood around FCLM was $15,190 and $20,457, compared to $20,948 and $20,422 in the Lower Mills area. At the time, the Museum Square neighborhood was experiencing a much more significant level of poverty, with a median family income of only $10,361 (US Census, 1980). Additionally, while the poverty level around Museum Square was over 31% of the population, the rate was 10 and 13% around FCLM, and only 9 and 10% in Lower Mills (US Census, 1980). In fact, the poverty level in the Museum Square area was even higher in 1990, at over 34%, right after the project was developed (US Census, 1990). While the Francis Cabot Lowell Mill and the Baker Chocolate Factory were located within neighborhoods experiencing disinvestment, the area around Museum Square had significantly greater socioeconomic challenges. The level of investment needed to kick start revitalization appeared to be far greater in the Museum Square area than in the neighborhoods surrounding FCLM or the Baker Chocolate Factory. In this sense, the local context in which FCLM was developed provided advantages for revitalization.
Chapter 6: Analysis and Recommendations

This chapter focuses on synthesizing the findings described in Chapters 4 and 5, and drawing comparisons between the three adaptive reuse case studies. After conducting a quantitative and qualitative analysis of these projects, it is quite clear that the Baker Chocolate Factory has had the most significant social and economic impact on the surrounding neighborhood. The Museum Square project has struggled financially since it was developed and certainly appears to have had very little catalytic impact. It is less clear the extent to which the Francis Cabot Lowell Mill has effected the revitalization of the surrounding area. A quantitative analysis of adjacent property sales prices reveal little impact since the project was developed, but qualitative research supports the notion that FCLM has catalyzed additional development, and the neighborhood surrounding project has improved relative to the City of Waltham based on certain socioeconomic measures. The following sections further investigate the key factors that facilitated different outcomes in each of the three case studies. These sections also introduce additional case studies, which serve as examples of strategies for neighborhood development in different contexts.

Analysis

FCLM vs. Baker Chocolate Factory

The previous chapter highlighted some of the demographic and socioeconomic similarities between the neighborhood surrounding the Francis Cabot Lowell Mill and the Lower Mills neighborhood, in which the Baker Chocolate Factory is located. In the 1980s, the period in which the projects were developed, both neighborhoods were characterized by mostly white, working class populations. The neighborhoods were experiencing similar levels of disinvestment, and were targeted by the City as areas in need of revitalization. Both developments also involved the adaptive reuse of a nationally recognized historic structure, and each developer creatively used tax credits and financing methods to make a financially feasible investment. However, the adaptive reuse of the Baker Chocolate Factory appears to have had a more significant impact on the surrounding area. Below is a list of the factors that contributed to
the success of the Baker Chocolate Factory Apartments relative to the Francis Cabot Lowell Mill.

- **Neighborhood Context:** As was mentioned in Chapter 4, the Baker Chocolate Factory Apartments had an advantageous location within the Lower Mills neighborhood compared to FCLM. The Baker Chocolate Factory Apartments are located adjacent to the central commercial intersection in the neighborhood, or in other words, in the exact center of Lower Mills. On the other hand, FCLM is located near downtown Waltham but is somewhat geographically isolated. Whereas a resident of the Baker Chocolate Factory could walk 50 feet to a restaurant or café, FCLM residents face greater barriers to reach active parts of the neighborhood. The density of commercial activity and residential development immediately surrounding Baker Chocolate likely facilitated economic spillovers, which was displayed in the increased values of commercial and residential properties closest to the project. The entire Lower Mills neighborhood is oriented toward the Baker Chocolate Factory, located right at the convergence of Dorchester Ave. and a few other main streets. As the focal point of the surrounding area, Baker Chocolate was in the ideal neighborhood context to have a catalytic impact after redevelopment.

- **Tenant Population:** While the adaptive reuse of the Francis Cabot Lowell Mill as an elderly, Section 8 development made the project financially feasible for the developer and brought long-term stability, it likely limited economic spillovers. One way in which residential development can help to revitalize an area is by bringing in residents who will spend money and help support local commercial activity. The initial adaptive reuse of the Baker Chocolate Factory served low and middle-income residents, and the subsequent developments within the complex have been market-rate apartments or condominiums. The level of potential economic impact of the tenant population of the Baker Chocolate Factory Complex is significantly higher than the low-income, elderly population requiring specialized care that resides at the Francis Cabot Lowell Mill. While FCLM was developed in a way that would bring the developer financial success, and provide an important service to a vulnerable population, it was not ideal for boosting the commercial economy in the surrounding neighborhood.

- **Scale of Mill Complex:** The size of the initial Baker adaptive reuse project, and the scale of the entire complex, provided future development opportunities and facilitated
neighborhood revitalization. After the development of the Baker Chocolate Factory Apartments, there were a number additional mill buildings within the Baker Complex that were available for redevelopment. Eventually these buildings were adaptively reused to provide market-rate housing and artists housing, including such projects as Winn Development’s Lofts at Lower Mills and the Baker Square Condominiums, bringing more activity to the Lower Mills neighborhood. In contrast, the vast majority of the original Boston Manufacturing Company complex became developed with the adaptive reuse of the Francis Cabot Lowell Mill, which created 258 units for elderly or disabled tenants. Subsequent development occurred within the complex, including the creation of artist studio spaces and residential lofts, but not nearly to the extent of the Baker Chocolate Factory. The scale and design of the Baker Chocolate Factory Complex allowed for additional investments after the initial adaptive reuse, enabling greater economic spillover in the long-term.

- **Planning and Community Involvement:** Finally, the revitalization of the Lower Mills neighborhood through the adaptive reuse of the Baker Chocolate Factory was facilitated by planning efforts and community participation. Prior to the development of the Baker Chocolate Factory Apartments by Keen Development, the BRA commissioned a plan for the Lower Mills neighborhood in 1979. This plan included much more than the redevelopment of the mills, from small business support to streetscape improvement, but began to account for ways to make the Baker Chocolate Factory a vital component of the revitalization of the neighborhood. During the initial adaptive reuse by Keen Development, listed as project participants are the Boston Department of Neighborhood Development and the Lower Mills Civic Association. The former head of the Civic Association feels as though the community was intricately involved in the development process (Tondorf-Dick, February 2015).

By receiving Section 8 allocations from the City of Waltham through the Neighborhood Strategy Demonstration, the City was required to develop a detailed plan of revitalization for the surrounding neighborhood. However, through a review of development documents, I was unable to find any involvement of the City in the development process for FCLM, or any materials related to how the project fit into a larger strategy of revitalization. Additionally, the original document that listed project
participants does not display any city agency or community group. The community involvement and planning initiatives surrounding the Baker Chocolate Factory redevelopment played an important role in fitting the project into a broader strategy of neighborhood revitalization.

Lowell as a Model for Lawrence

In Chapter 2, Lowell was mentioned as a prime example of how an entire city can embrace adaptive reuse and historic preservation as a strategy for revitalization. The push for revitalization through historic preservation in Lowell got a huge boost in 1978 when federal legislation created the Lowell National Historic Park, which brought with it a $40 million federal investment. Between 1975 and 2000, public and private investors, as well as community development groups, spent more than $1 billion to adaptively reuse the mills of Lowell and invest in higher quality infrastructure and amenities (Marion 2014, 19). Tax credits played a vital role in the revitalization of the city, as Lowell projects have received $324 billion in federal tax credits since 1996, and almost $40 million in State Historic Tax Credits between 2004 and 2012 (Marion 2014, 125). The redevelopment of Lowell through adaptive reuse and historic preservation was a tremendous success, with experts considering the city to now be a “model of effective, innovative practices” for urban revitalization (Marion 2014, 32). In 2002, the city received the highest honor awarded by the National Trust for Historic Preservation, which recognized the collaborative work by the public and private sectors (Marion 2014, 32).

While much of the strategy for revitalization in Lowell focused on commercial activity and tourism, particularly with the establishment of the National Historic Park, residential adaptive reuse played a role in the earliest stages of redevelopment. Market Mills, which was redeveloped in 1982, was a mixed-use project that “became the southern anchor of the historic downtown” (Marion 2014, 127). In addition to housing the Visitor Center for the National Historic Park, Market Mills included 230 affordable housing units, 82 for families and 148 for elderly individuals (Marion 2014, 128). The adaptive reuse of Market Mills to include a substantial residential component was significant in a couple of ways. First, it contributed to the financial feasibility of the project by securing a commitment from HUD for subsidies under the Section 8 program (Marion 2014, 126). It also brought residents to a formerly vacant structure
that could help to sustain street-level activity in the surrounding area. A lively downtown area focused on street-level activity was always a goal of earlier revitalization efforts in Lowell, and residential and mixed-use adaptive reuse played a part in implementing this strategy. In the reverse, the residential adaptive reuse projects in Lowell benefitted from the emphasis on commercial activity and quality public space, creating a more desirable downtown environment for residents.

While Lowell is a clear success story, considering that the city still confronts issues that many post-industrial cities face, Lawrence has lagged behind. They are very similar cities in a number of ways, particular as it relates to their industrial past. Both cities played a vital role in the industrial revolution in the US, and built their economy around textile manufacturing. The mills that were constructed for this industry came to dominate the built environment of Lawrence and Lowell, and once these industries left to follow cheaper labor, the massive structures lay vacant and deteriorating for decades. In terms of the built environment, whereas the Baker Chocolate Factory and the Francis Cabot Lowell Mill are isolated mill structures within a more standard residential and commercial neighborhood, Downtown Lawrence and Lowell are characterized by vast expanses of large mills. The social and economic conditions of these cities have suffered since industry left, and many of these issues still remain, although Lowell has improved significantly in the past 30 or so years relative to Lawrence. In recent years, Lawrence has seen positive signs of revitalization, with adaptive reuse projects like Washington Mills which produced 155 market-rate rental units, and strong influence and activity from community groups like Lawrence Community Works and Groundwork Lawrence.

To some extent, Lawrence followed the Lowell model in terms of focusing on adaptive reuse and historic preservation for social and economic development. A Heritage State Park was designated in the mill district of Lawrence in 1980, and millions in federal and state investment were dedicated to capitalize on the city's historic past. The Museum Square project was designed to be a part of this broader initiative, and the developer planned to benefit from the significant investment in the downtown area. With so many similarities between Lowell and Lawrence, why has one city seen a renaissance while the other has struggled mightily? The following section discusses key factors that enabled the relative success of Lowell compared to Lawrence in spurring revitalization through adaptive reuse and historic preservation, and also considers how the Museum Square project fits within this larger context.
• **Political Capital:** A major factor in the revitalization of Lowell was the local political capital and support. Paul Tsongas, who grew up in Lowell, was a US Congressman for the district that included the City from 1975 to 1979. During this time, he played a significant role in pushing for the designation of the Lowell National Historical Park. Tsongas became a US Senator in 1979 and continued to be a champion for the redevelopment of Lowell. James Campbell, who was the Assistant City Manager in Lowell during Tsongas’ tenure in the Senate, commented that Tsongas was the “driving force” behind the transformation of Lowell in the late 1970s and early 1980s (Campbell, March 2015). Campbell cited the political stability and influence in Lowell as playing a major role in its revitalization, and contrasted this with the political environment in Lawrence, which suffered through some corrupt administrations (Campbell, March 2015). Without an influential political champion like Paul Tsongas, Lawrence struggled to establish a targeted plan for revitalization or attract federal investment.

• **Public-Private Partnership:** The Lowell Plan is a nonprofit economic development organization that was established in Lowell in 1980. For over 30 years, the Lowell Plan has convened city leaders in business, government, education and community development for a dialogue related to the revitalization of Lowell. This collaboration has played a huge role in transforming the city since 1980, and is “exhibit #1 in the case for Lowell being the epitome of public-private partnership innovation” (Marion 2014, 138). According to Craig Thomas, an Urban Renewal Project Manager for the City of Lowell, this public-private partnership has been crucial for involving local banks and lenders in many of Lowell’s adaptive reuse and historic rehabilitation projects (Thomas, March 2015). This collaboration between public and private stakeholders is something that Lawrence was not able to benefit from during the time of the adaptive reuse of Museum Square. According to Thomas, Lawrence has only recently begun to successfully implement this sort of strategy (Thomas, March 2015).

• **Anchor Institutions:** Lowell has been able to benefit economically from a couple of large institutions, the University of Massachusetts-Lowell and Wang Laboratories. The nearly 15,000 students enrolled at UMass-Lowell add to the commercial activity and knowledge base of the city, while researchers at the University have contributed to the city’s strategies for redevelopment and revitalization. James Campbell, the former
Lowell City Manager, spoke of how the University has exploded in prominence and is investing heavily in city infrastructure (Campbell, March 2015). He also emphasized the important role that Wang Laboratories played in the revitalization of Lowell, a high-tech company that had its headquarters in the city from 1980 to 1997. In 1988, Wang Laboratories had sales of over $3 billion and employed more than 32,000 workers (NY Times 1993). The historic preservation initiative in Lowell may have simultaneously influenced and benefited from the emergence of these major institutions. Conversely, Lawrence has not benefited from the economic impact of large institutions or employers. This has limited the impact of initiatives for economic development through adaptive reuse and historic preservation, contributing to a weak housing market and little commercial activity. A project like Museum Square, with a substantial market rate component, likely would have been more financially feasible and had more economic spillovers in a Lowell context. In this sense, the developers made a mistake by following the Lowell blueprint, when the project needed to be catered to the Lawrence context.

- **Middle-Income Community:** Lowell is a city with an area of over 14 square miles, while Lawrence is about half this size, at approximately 7.4 square miles. This additional space allowed Lowell to retain some of its middle and upper-income residents during the time of suburbanization and urban disinvestment. In other words, wealthier residents of Lowell may have moved from the central city to the suburbs, but they still stayed within the city limits. The City of Lawrence did not have the room for this suburbanization, so former residents were more likely to leave the city for the wealthy neighboring suburbs of Andover and North Andover. Both James Campbell and Kristen Harol cite this geographic factor as playing a role in the success of Lowell compared to Lawrence. This provided Lowell with a stronger tax base, and residents that were willing and able to invest in the future of the city.

- **American Textile History Museum:** The American Textile History Museum, an affiliate of the Smithsonian Institution, bought a building in Lowell in 1992 and moved its headquarters to that location in 1997. According to original development documents, this Museum had initially intended to move to Lawrence in the mid-1980s, and specifically locate opposite the Museum Square building within the Heritage State Park. For a number of reasons, the Textile Museum decided not to move to Lawrence, but
rather to Lowell several years later. This had a major impact on Museum Square, and the project that was developed in the late 1980s was somewhat of a recovery from what was originally intended. Robert Kargman, the developer of Museum Square, contrasted the loss of the Textile Museum in Lawrence with the designation of the Francis Cabot Lowell Mill as a National Historic Landmark (Kargman, March 2015). While the designation of FCLM as a National Historic Landmark brought a large federal grant, the loss of the American Textile History Museum in Lawrence was a challenge for Museum Square (Kargman, March 2015). Although it is unclear what the project would have looked like, it is possible that the adaptive reuse of Museum Square would have produced different results and had a more positive impact on the surrounding neighborhood if it secured the Textile Museum as was originally intended.

Adaptive Reuse in Dudley Square

It is quite clear that the Museum Square adaptive reuse project was part of a broader Lawrence initiative that attempted to follow the model of Lowell from the late 1970s and early 1980s. Unfortunately, due to a number of factors described in the previous section, Lawrence was unable to successfully implement this strategy for revitalization, which was based around the establishment of the Lawrence Heritage State Park. After the Museum Square Apartments opened in 1989, there would not be another residential adaptive reuse project for over a decade. The initiatives that have emerged in recent years led by community organizations and nonprofits, like Groundwork Lawrence and Lawrence Community Works (LCW), show evidence of a new strategy for neighborhood development. This strategy incorporates adaptive reuse to achieve broader community goals, similar to the redevelopment seen in the Dudley Square neighborhood of Boston. While the Dudley Square revitalization is quite unique, with its roots in grassroots efforts and activism from within the community, CDC activity in the late 1990s into the 2000s brought adaptive reuse into the formula for neighborhood development. In some ways, Dudley Square can serve as a model for Lawrence of how to transform historic buildings into community assets, with positive social and economic neighborhood impacts. While this phenomenon appears to be taking root in Lawrence, this section discusses CDC and non-profit activity in
Dudley Square and how an adaptive reuse project like Museum Square could have had a more profound neighborhood impact as part of a similar initiative.

Dudley Square is located in the Roxbury neighborhood of Boston, and is one of the poorest areas in the city. The neighborhood has historically had a large minority population, and has confronted issues of arson, disinvestment and illegal dumping (DSNI). Since the early 1980s, community groups have emerged in Dudley Square with a focus on revitalizing the neighborhood, while protecting the interests of existing residents. The Dudley Street Neighborhood Initiative (DSNI), which was formed in 1984 by residents within the community, is the prime example of this movement. The following is an excerpt from the DSNI website:

DSNI's major accomplishment has been, and continues to be, organizing and empowering the residents of the Dudley Street neighborhood to create a shared vision of the neighborhood prioritizing development without displacement and bringing it to reality by creating strategic partnerships with individuals and organizations in the private, government, and nonprofit sectors. That shared vision first emerged from a community-wide process conducted initially in 1987 that resulted in a resident-developed, comprehensive revitalization plan.

With the level of vacancy and abandonment in Dudley Square, the adaptive reuse and rehabilitation of housing, commercial and community space have played a significant role in the revitalization of the neighborhood. According to DSNI, “more than half of the 1,300 abandoned parcels have been permanently transformed.” Part of this initiative to rehabilitate vacant buildings involved the adaptive reuse of many of Dudley’s historic structures. Five of these notable historic preservation projects were completed by two local community development corporations, Madison Park and Nuestra Comunidad, both of whom are listed as partners of DSNI. Of these five catalytic adaptive reuse projects, the first to be completed was the Sargent Prince Building in 1996 by Nuestra Comunidad (Price and Thornhill, January 2015). This was a mixed-use project that included ground floor commercial space and 29 studio apartments for formerly homeless individuals. Nuestra went on to redevelop Palladio Hall, a 1870s Italian Renaissance style building, into commercial and office space in the 1990s. According to the CDC, this project “inspired further development in Dudley Square by demonstrating the financial feasibility of upper-floor office space in an existing building” (Nuestra Comunidad). Their third major adaptive reuse project was the Dartmouth Hotel in the early 2000s. While
there was initial resistance to the idea of developing residential units in Dudley, this project ended up a major success, winning the Boston Preservation Alliance’s 2006 Preservation Achievement Award (Price and Thornhill, January 2015).

The Madison Park Development Corporation developed two adaptive reuse projects in Dudley Square, Hibernian Hall and the former Woolworth Building, that contributed to this movement toward community development through historic rehabilitation. The Hibernian Hall project utilized a diverse financing strategy that included Federal Historic Tax Credits, New Market Tax Credits, loans from MassHousing, grants from the Neighborhood Reinvestment Corporation and the Massachusetts Historical Commission, and approximately $1,000,000 from private donors, foundations and corporations (Madison Park 2004). In original development documents, Madison Park described the goals of the project in terms of neighborhood revitalization.

*The proposed transformation of Hibernian Hall into the Roxbury Center for Arts at Hibernian Hall will create a cultural center in the Roxbury community; contribute to the revitalization of Dudley Square; provide affordable, quality office space for community-based cultural organizations and others; and create jobs within the community. We will create 29 permanent full-time jobs, targeted to low-income individuals. Types of jobs created will include retail service workers, food service workers, building maintenance, and clerical/administrative positions. We will also create two new small businesses, including a sit-down restaurant. Finally, the project will allow local retailers to capture spending that currently flows to businesses outside the Roxbury community.*

These adaptive reuse and historic rehabilitation projects, when combined with a broader initiative for community revitalization in Dudley Square led by DSNI and other community groups, appear to have had a profound impact on surrounding neighborhood.

It is important to note that adaptive reuse, while very successful, has only been a component of the redevelopment of Dudley Square. This is particularly true in regard to residential development, where the majority of affordable housing has come in the form of new construction. One of the most significant developments to the revitalization of Dudley Square was the Hope VI project that redeveloped Orchard Park, characterized as “one of the most severely distressed” properties by the Boston Housing Authority, into Orchard Gardens.
In complete contrast to adaptive reuse, this project involved the demolition of Orchard Park and the new construction of 331 mixed-income housing units. The Orchard Gardens project was very successful, winning a Best Practices Award from HUD in 1999 and a Community Building Award from the American Institute of Architects and HUD in 2000. There have been numerous other new residential construction projects in Dudley Square in the last few decades, but much of this type of development can be attributed to the vast landscape of vacant lots that characterized the neighborhood in the 1980s. While adaptive reuse and historic preservation played an important role in redeveloping Dudley Square, particularly through inspiring community pride and creating an attractive neighborhood, more development methods were needed for substantial revitalization. The revitalization efforts in Dudley Square have capitalized on many of these opportunities, and along with significant community involvement, this strategy has enabled the neighborhood to thrive.

The broader initiative for revitalization through historic preservation in Lawrence, as well as the Museum Square development, would have been well served by implementing a strategy similar to Dudley Square. While there are certainly differences between Dudley Square and the neighborhood around Museum Square related to social dynamics and geographic context, there are also many similarities. Both communities are characterized by large minority populations and high poverty rates, as well as extreme disinvestment and high levels of vacancy and abandonment. As was described in the previous section, there were a number of factors that prevented Lawrence from successfully implementing the revitalization model established by Lowell. While this approach attempted to replicate the Lowell model, with apparently little community input, the City of Lawrence and the Museum Square project could have benefitted from a strategy similar to Dudley Square.

Museum Square differed from adaptive reuse projects in Dudley Square in a few ways. First, the project was managed by a for-profit developer, which likely had a number of implications in terms of how the development process was structured. There was also little community involvement and the project was more focused on attracting new residents to the area with luxury, market-rate units than meeting community needs. Finally, the whole approach to
revitalization at the time was very top-down, from the local government side as well as the developer. In Dudley Square, the revitalization effort involved residents and community groups from the beginning, and they established a plan for how the neighborhood should approach issues of economic development. The adaptive reuse projects by Madison Park and Nuestra Comunidad supported these broader goals for neighborhood revitalization, and community groups have been intricately involved in the development process. The success of the revitalization of Dudley Square is well documented, as the neighborhood has transformed from widespread disinvestment to become a lively and desirable community. In retrospect, Museum Square and earlier efforts for revitalization through adaptive reuse in Lawrence followed the wrong approach. However, organizations like LCW and Groundwork Lawrence show significant promise for community-based historic rehabilitation and adaptive reuse projects in the future.

**Recommendations and Project Criteria**

The analysis of the three case studies focused on in this thesis, the Baker Chocolate Factory, Museum Square, and the Francis Cabot Lowell Mill, provides important lessons for future initiatives for neighborhood development through adaptive reuse. In the final section of this thesis, I present recommendations for improving future adaptive reuse projects that focus on community revitalization and criteria for effective project design.

**Recommendations**

- **In terms of neighborhood revitalization and positive community impact, there are advantages to residential adaptive reuse projects led by CDCs or nonprofit organizations in areas experiencing severe disinvestment.** This is not to say that adaptive reuse projects by for-profit developers cannot have a catalytic impact. The quantitative and qualitative research conducted for this thesis indicate that the Baker Chocolate Factory Apartments, an adaptive reuse project led by a for-profit developer, have contributed to the revitalization of the Lower Mills neighborhood. However, it is clear that this area of Southern Dorchester was not experiencing the extent of
disinvestment, or suffering from the same social and economic challenges, as places like Lawrence or Dudley Square.

Based on the research conducted for this thesis, there appear to be substantial benefits to nonprofit-led development projects in neighborhoods experiencing significant disinvestment, like the area around Museum Square. While many for-profit developers working in these neighborhoods are concerned with having a positive impact on the surrounding community, their focus is on maximizing profits for investors. CDCs and nonprofit developers of course consider the financial feasibility of development projects, but their focus is to provide benefits to the surrounding community. As seen with the Museum Square project, for-profit developers may be encouraged to include more market-rate units than are financially feasible, in order to capitalize on future improvements in the local housing market. Moreover, in the case of Museum Square, the developer appeared to be trying to benefit from larger government investments in Downtown Lawrence, rather than playing a role in the revitalization of the surrounding community. Conversely, Madison Park and Nuestra Comunidad worked with neighborhood nonprofits and emphasized community interaction in order to ensure that their adaptive reuse projects contributed to the revitalization of Dudley Square. CDCs and nonprofits appear to be playing a larger role in adaptive reuse in Lawrence, with the recent Reviviendo Gateway Initiative and the Union Crossing redevelopment by Lawrence Community Works. Early indications are that these projects have been successful, and development activity around the mills in Lawrence has increased in recent years.

For the Lower Mills neighborhood or Downtown Waltham, the context was such that an individual adaptive reuse project led by a for-profit developer could contribute to neighborhood revitalization while remaining focused on maximizing profits. However, Dudley Square and Lawrence needed developers whose priority was the contribution of their development project to broader neighborhood goals, and who took steps to ensure that the project targeted community challenges.

- **Individual development projects should incorporate or fit within a larger plan for neighborhood revitalization.** Of the three case studies focused on in this thesis, the project with the most quantifiable impact on the surrounding community is the Baker
Chocolate Factory. This adaptive reuse project was also apparently the only one to involve a significant neighborhood planning component. First, there was a detailed neighborhood revitalization plan for Lower Mills commissioned by the BRA only a few years prior to the development of the Baker Chocolate Factory Apartments. Additionally, the Lower Mills Civic Association and the Boston Department of Neighborhood Development, two organizations concerned with the overall impact of the project on the surrounding neighborhood, were very involved in the development process. These factors helped to shape the final adaptive reuse project, and contributed to the positive long-term impact that the development has had on the Lower Mills neighborhood. Dudley Square is another example of an initiative for adaptive reuse and historic rehabilitation that fits within a larger plan of community revitalization. While one of these cases involved a for-profit developer, and the other CDCs and nonprofit developers, they both produced positive outcomes.

- **Residential adaptive reuse and affordable housing development can be effective tools to begin the revitalization process in disinvested communities.** One of the main challenges of developing real estate in disinvested neighborhoods is that the projects are often not financially feasible. The tax credits and incentives provided for historic rehabilitation and affordable housing provide an opportunity to develop in neighborhoods in need of revitalization. Lower Mills is a great example of a neighborhood that was revitalized through an initial investment in affordable housing and historic preservation. The Baker Chocolate Factory Apartments paved the way for future market rate development within the neighborhood, which would have been unlikely to occur without the initial investment in affordable housing. For these reasons, residential adaptive reuse projects that provide affordable housing are a logical fit for neighborhood revitalization initiatives. In addition to being more financially feasible than other development projects, these projects provide quality affordable housing for local residents, preserve the character of the neighborhood, and can contribute to more vibrant commercial activity.

- **Safeguards should be implemented to prevent issues of displacement resulting from gentrification.** As was mentioned in Chapter 4, Lower Mills is facing gentrification concerns as the desirability of the neighborhood has increased dramatically since the
initial adaptive reuse of the Baker Chocolate Factory. All of the redevelopment projects in the Baker Complex were conducted by for-profit developers, and many of the initial affordability restrictions are now burning off. Even at the Baker Chocolate Factory Apartments, a project that would not have been financially feasible without the benefits received for including affordable units, affordability restrictions are set to expire in 2018 and the property can transition to market-rate. Future issues of gentrification can be a concern when the redevelopment of vacant buildings is successful in catalyzing investment in the surrounding neighborhood. Planners, community groups and CDCs should be proactive in ensuring the permanent availability of affordable housing in neighborhoods undergoing revitalization, as future gentrification can be a concern.

In recent years, there have been a number of initiatives focused on identifying strategies for combatting the displacement that follows gentrification. Causa Justa :: Just Cause (CJJC), a Bay Area-based grassroots organization, released a report in 2014 that detailed trends of rising housing prices and displacement, and proposed several principles and policies to counteract these issues. The following are a few strategies presented by CJJC that could be implemented in areas like Lower Mills to mitigate the displacement that can follow significant neighborhood revitalization:

- **No Net Loss Policy** – This policy involves a city requirement that “all affordable units lost through renovation, conversion or demolition be replaced within the same neighborhood if possible and within the same city at a minimum” (CJJC 2014, 67). There are examples of cities that have implemented such policies, including Portland, OR and Los Angeles (CJJC 2014, 67). Lower Mills is a neighborhood that appears to be experiencing gentrification, and the potential conversion of the Baker Chocolate Factory Apartments, which is eligible to be converted to market-rate housing, could contribute to the displacement of low and moderate-income community members. A “no net loss” policy could help to prevent the loss of affordable housing at the Baker Chocolate Factory, or result in more affordable development within the neighborhood.

- **Condominium Conversion Regulations** – These regulations can vary in terms of stringency and structure, with stricter policies being more ideal for counteracting gentrification and displacement. Some of the conversion policies presented by
CJJC include a limit on the number of units that can convert from rental to for-sale condominium units each year, relocation benefits for existing tenants, conversion fees for property owners that go toward a local housing trust fund, and the coordination of conversion limits with affordable housing preservation goals (CJJC 2014, 71). In 2014, Mayor Walsh of Boston signed an ordinance “which doubles the amount of compensation offered to tenants when their units become converted to condominiums” (City of Boston). This is a step in the right direction for Boston, a city that is experiencing gentrification in a number of their neighborhoods. For areas like Lower Mills, which is experiencing gentrification decades after the initial adaptive reuse of the Baker Chocolate Factory, these types of policies are essential for protecting neighborhood residents.

- **Real Estate Transfer Tax** – City policies involving a real estate transfer tax create penalties for development or investment activities that focus “on profit generation without benefits to existing residents” (CJJC 2104, 81). Such policies involve a tax on property sales above a certain threshold, with exemptions for certain sales to avoid penalizing low-income property owners (CJJC 2014, 81). The goal of a real estate transfer tax is to discourage speculative investment, and to accumulate tax revenue dedicated toward the preservation of additional affordable housing.

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**Criteria for Effective Residential Adaptive Reuse with Neighborhood Revitalization Goals**

- **Strong sources of financing** – As evidenced by the success of the Baker Chocolate Factory Apartments and the financial struggles of Museum Square, it is important for residential adaptive reuse projects in disinvested neighborhoods to acquire adequate financing. The types of projects focused on in this thesis are located in neighborhoods in need of revitalization, so the local housing markets will not be able to support the full costs of development. It is essential for developers and CDCs to strategically make use of available financial incentives and funding sources to structure a project that will be financially sustainable. The financial stability of a development project can influence the
revitalization of the surrounding neighborhood, through the maintenance of the building and by signaling success to future developers and investors.

- **Careful assessment of the local housing market** – Museum Square is an example of a project that did not reflect the housing market of the area in which it was developed. The developer of Museum Square, while making use of certain financial incentives and funding sources, included a large number of market-rate units and provided luxury amenities to attract higher-income tenants to the project. When the real estate market slowed down not long after development, Museum Square was unable to acquire sufficient rental income through its market-rate units to sustain the project, and it has long suffered financial challenges. Developers of residential adaptive reuse projects need to carefully analyze the local housing market, and ensure sufficient financial subsidy to successfully operate the project.

- **Local government and political support** – With initiatives related to neighborhood social and economic development, local government plays an important role in facilitating revitalization through policies and planning. The level of political support for the revitalization of Lowell through historic preservation was quite unique, involving a US Senator as a key leader, but it highlights the impact that a facilitative political environment can have on revitalization efforts. For residential adaptive reuse projects, local government policies and decisions can influence their individual success and long-term neighborhood impacts. In Lower Mills, the initial Baker Chocolate Factory redevelopment occurred not long after an extensive neighborhood plan was commissioned by the City of Boston, and the Department of Neighborhood Development played a role in the project’s development process. From initial financial subsidies to a later agreement to stall loan payments to the City of Boston, the local government has contributed to the success of the Baker Chocolate Factory Apartments. When considering a potential adaptive reuse project, it is essential to consider local government policies and support mechanisms that can facilitate the success of such a residential development.

- **Presence of neighborhood revitalization plan or initiatives** – Many of the cases highlighted in this thesis demonstrate the important role that a neighborhood revitalization plan or broader neighborhood initiatives can play in the success of
individual adaptive reuse projects. Lowell and Dudley Square involved large-scale initiatives for revitalization with substantial adaptive reuse components. Individual residential adaptive reuse projects within these areas were quite successful and appeared to have positive spillover effects. As was mentioned in the previous section, the development of the Baker Chocolate Factory Apartments followed the 1979 revitalization plan for the Lower Mills neighborhood. While the adaptive reuse project was not a direct result of the planning process, the plan provided a framework for the way the Baker redevelopment could contribute to the broader revitalization of Lower Mills. The presence of broader neighborhood initiatives for revitalization can augment the positive impact of a residential adaptive reuse project. Additionally, a neighborhood plan provides community goals that an adaptive reuse project can strive to contribute to, rather than existing as an isolated development.

- **Community involvement** – Involving the community in the development process can benefit an adaptive reuse project in a number of ways. First, community engagement can improve the relationship between the project and the surrounding neighborhood residents, strengthening public support for the development. It also provides the developer access to local knowledge about neighborhood or development site, leading to more informed development decisions. Finally, it enables the developer to identify community needs, essential for a project that has aspirations of contributing to community revitalization.

- **Safeguards against gentrification and displacement** – The Recommendations section highlighted the importance of preserving affordability in revitalized neighborhoods like Lower Mills, in order to prevent the displacement of lower-income residents. There are a number of tactics to combat gentrification and displacement, including no-net-loss policies, condo conversion regulations and real estate transfer taxes. While most of these policies will be implemented by local government, developers of residential adaptive reuse projects with revitalization goals should be aware of the policy environment in which they are operating. Efforts should be made to communicate with community groups and nonprofits that are focused on preserving affordability in their neighborhood. Perhaps most importantly, developers have the opportunity to make decisions regarding the affordability of the residential adaptive reuse project that can help to prevent displacement through gentrification. Additionally, a commitment to affordability can
establish a positive relationship between the developer and the community, which can be influential to the future success of the adaptive reuse project.
Chapter 7: Conclusion

Through an in depth analysis of three case studies using a combination of qualitative and quantitative research methods, this thesis seeks to understand residential adaptive reuse as a tool for neighborhood revitalization. The Baker Chocolate Factory in Dorchester provides evidence that residential adaptive reuse is capable of contributing to the long-term revitalization of the surrounding neighborhood. An analysis of local property assessment data suggests that the redevelopment of the Baker Chocolate Factory has had a catalytic impact on adjacent property values. Conversely, the Museum Square project in Lawrence demonstrates the limitations of residential adaptive reuse projects in terms of catalytic impact. Both quantitative and qualitative research has revealed that the project has struggled since its development and has had little impact on the surrounding neighborhood.

While the Baker Chocolate Factory project demonstrates the potential success of residential adaptive reuse as a tool for neighborhood revitalization, this thesis investigates an additional question: what are the factors involved in residential adaptive reuse that are associated with positive or negative long-term outcomes? The success of the Baker Chocolate Factory, the struggles of Museum Square, and the mixed results of the Francis Cabot Lowell Mill provide insight into the components of the development process, as well as external factors, which influence the level of neighborhood revitalization through residential adaptive reuse. One of the components associated with positive outcomes is the presence of a broader plan or strategy for neighborhood revitalization. The initiatives in the City of Lowell and Dudley Square, based upon historic preservation and community empowerment respectively, successfully incorporate residential adaptive reuse. These cases serve as models for broader initiatives of revitalization through adaptive reuse, and reveal some key factors that influence long-term outcomes.

The successes and shortcomings of the case studies analyzed in this thesis suggest a path for implementation. Based on the in depth research conducted for this thesis, I present recommendations and a set of criteria for utilizing residential adaptive reuse as a strategy for neighborhood revitalization. The criteria for successful implementation of residential adaptive reuse for neighborhood development include the following: strong sources of financing, a careful assessment of the local housing market, enabling legislation and local policy, the presence of a broader neighborhood strategy, community involvement, and safeguards against displacement...
through gentrification. Recent trends suggest that adaptive reuse is increasing in popularity as a revitalization strategy. This necessitates an in depth analysis of the practice, in order to inform future implementation and produce higher quality neighborhood outcomes. Through the investigation of three case studies, this thesis intends to contribute to the understanding of a growing practice. This analysis of the Baker Chocolate Factory, Museum Square, and the Francis Cabot Lowell Mill, three projects developed over 25 years ago, can inform future efforts to affect neighborhood revitalization through residential adaptive reuse.
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