FEAR AND LOATHING IN MASSACHUSETTS: CHAPTER 40B, COMMUNITY OPPOSITION, AND RESIDENTIAL PROPERTY VALUE

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Submitted to the Department of Urban Studies and Planning in partial fulfillment of the requirements for the degree of

MASTER IN CITY PLANNING
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ABSTRACT

This thesis asks and answers an important question in the heated debate concerning M.G.L.c. 40B, the state's Comprehensive Permit Law: "Do large-scale, high-density Chapter 40B multi-family rental developments negatively impact nearby single-family property values in suburban Boston communities?" We ask the question because of the widespread belief that one of the strongest motives for resident opposition to 40B projects is the fear that homes values surrounding these multi-family developments will decrease.

In an effort to resolve the debate, we design a rigorous research methodology to examine the impact of introducing a large-scale multi-family rental development into a neighborhood of single-family homes. We develop strict case selection criteria that identify nine 40B developments located in eight suburban communities. These case studies represent some of the most egregious, controversial, and dense Chapter 40B developments in the Boston metropolitan area; in other words, a suburbanite's worst nightmare. After selecting the cases, we establish conservative impact areas, which include only the single-family homes mostly likely to be affected by each respective 40B development. Our process for identifying impact areas restricts the boundaries to essentially abutters and immediate neighbors of each of the nine developments. The purpose for carefully establishing such impact areas is to objectively measure single-family home price changes over time as 40B developments are announced, approved, constructed, occupied, and integrated into the resident communities.

We use hedonic (econometric) modeling to create comparative house price indexes for each impact area along with an appropriate control area (the remainder of the host community) to determine whether a decrease in home values has occurred over time within such impact areas. The results of all nine case studies conclude that the introduction of large-scale, high-density 40B multi-family rental developments in single-family neighborhoods *does not* affect

the value of adjacent homes. While it may seem reasonable, our findings show that, in fact, the "rational economic" fear of potential asset value loss among suburban homeowners is misplaced.

Additionally, we investigate community opposition against 40B developments by examining the comprehensive permitting processes for each case study. The 40B process often fosters an environment where projects are set up for contentiousness, pitting developers and municipalities against one another. The "us versus them" effect of the statute contributes to a process rife with mistrust, conflict, and vehement opposition.

It is the authors' hope that this study further informs participants in Massachusetts's affordable housing debate and provides additional insight on some of the dysfunctional consequences of the Chapter 40B statute.

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

THESIS PURPOSE

This thesis asks and answers an important question in the heated debate concerning M.G.L.c. 40B, the state's Comprehensive Permit Law: "Do large-scale, high-density Chapter 40B multi-family rental developments negatively impact nearby single-family property values in suburban Boston communities?" We ask the question because of the widespread belief that one of the strongest motives for resident opposition to 40B projects is the fear that homes values surrounding these multi-family developments will decrease.

Chapter 40B, also known as the Comprehensive Permit Law and Anti-Snob Zoning Act, is a Massachusetts statute that enables developers to obtain state authorized comprehensive permits in municipalities that are not in compliance with state affordability criteria. Developments seeking comprehensive permits can override local zoning regulations if (1) less than ten percent of a municipality's housing stock is defined as affordable; and (2) a minimum of 20 percent of the housing units in the proposed development are affordable to households earning less than 50 percent of the area median income (AMI) or 25 percent of the housing units are affordable to households earning less than 80 percent of the AMI.

This study examines the relationship between nine large-scale, high-density, multi-family rental 40B developments and single-family house value in eight communities throughout suburban Boston. Comparative price indexes are created using hedonic modeling to determine whether home values decreased over time as the result of a 40B development. No effective differences were found between the home price indexes for the impact and control areas in all nine case studies. We conclude that the introduction of a 40B development does not negatively affect the value of adjacent single-family homes.

The qualitative analysis investigates the assumption that development opposition is motivated by property devaluation. Through the examination of primary source material, little evidence concerning property values was found. Formal development opposition is most

often limited to technical issues regarding health, safety, and "consistency with local needs."[1] Fear of property devaluation is not a tractable issue to use as the basis for the denial of a comprehensive permit. Therefore, it is not surprising that we did not find evidence of this fear even if it is tangible to residents and motivates opposition. What we did find was an ancillary story of an arbitrary process where developers and towns are pitted against one another.

The nine projects are categorized into three groups: "Unopposed," "Contentious," and "Highly Contentious" relating to the level of opposition the developments faced during the permitting process and which entity granted the final permit decision, be it the town, Housing Appeals Committee, Superior Court, Appellate Court, or Supreme Judicial Court. These categories are used to show how the 40B process has been framed and re-framed over time.

We discovered that the 40B process can be conceptualized in terms of three stages: "Stage 1-Introduction" – the developer introduces a project to the town; "Stage 2-Debate" – the permitting process negotiations and bargaining between the developer and municipality; "Stage 3-Resoultion" – final permit decision. The three stage process was formulated with respect to the highly contentious developments. We found that highly contentious projects often occur when towns are unprepared and thus forced to be reactive towards new development and developers are able to come in and propose whatever project they choose. The permitting process puts the two parties at odds, setting the stage for a high-stakes zero sum game. Stage 2 of the process takes place with little negotiation or bargaining between developers and municipalities and a permit denial from the town. This denial leads to an extensive stage 3 with a long, expensive legal process, incentivizing developers to maximize project density to compensate for extra costs; and leaving towns with little leverage once the courts render the permit decision.

The contentious developments are also used to describe how the 40B process has been reframed over time. Initially the process was framed in such a way that resulted in an either/or solution of receipt or non-receipt of a comprehensive permit. With the contentious projects, developers and towns begin re-framing how to proceed with stage 2 of the 40B process by

learning that they could both have a better end result if they negotiate and bargain during the permitting process. The municipality ends up making the final permit decision in stage 3 as opposed to the developer appealing the permit through the higher stakes court system.

When towns are proactive and both the towns and developers make concerted efforts to negotiate in good faith, the end results are less controversial projects that incorporate the needs and wants of both parties. It is important to note that this zero sum game has changed as a consequence of the 40B framework shifting over time. Particularly with Franklin School, Lexington was able to completely reframe the context in which the developments received a zoning override. The town created an alternative model for new development in their community, instead of having the developer come into the town and propose a project in stage 1; they turned the tables on the process and proposed a project to developers forming a whole new process. Figures 1.1 and 1.2 below juxtapose the highly contentious Kimball Court against the town-sponsored Franklin School.

Figures 1.1, 1.2 KImball Court, Woburn (left) and Franklin School, Lexington (right)

RESEARCH METHODOLOGY

It has been shown in other contexts that multi-family affordable developments do not negatively impact surrounding property values. This study is the first of its kind in Massachusetts. Our thesis applies rigorous and objective quantitative and qualitative research methods to explore the assumptions of neighborhood devaluation resulting from the introduction of 40B developments.

We design a comprehensive research approach that from a methodological perspective creates the highest probability that our study will identify a negative relationship between the

introduction of a 40B development and single-family house prices. We select cases using rigid criteria. The selected 40B developments had to be: (1) located within the Boston metropolitan area, (2) permitted between the mid-1980s and 2000, (3) follow a rental tenure structure, and (4) embedded in single-family residential neighborhood. This process identified a group of projects that are both larger and denser than the typical 40B development. It could be argued that the case studies are the types of developments that suburbanites fear most: the worst neighbor that one would hope to have. If there was ever a 40B project to cause a negative impact on surrounding property values, it would be the large dense developments examined in this study.

We identified impact areas to ascertain the effect of introducing a 40B development into a single-family neighborhood. How an impact area is defined is critical to achieving accurate and unbiased results. We carefully and conservatively drew impact area boundaries according to strict criteria, which resulted in impact areas that are almost exclusively abutters of the development. Impact area designation is done on a case by case basis; we cannot simply apply one generic formula such as drawing a ¼ or ½ mile radius around the development capturing all the homes in the area. Our procedure includes review of aerial photos, zoning maps, road maps, discussions with municipal officials, and site visits.

This thesis uses hedonic modeling techniques to create comparative sales price indexes for an impact area and control area (the remainder of single-family homes in that town). Implicit in hedonic modeling is the assumption that home buyers assign value to the individual characteristics that make up a house (size, style, number of rooms etc). Hedonic modeling is a statistical tool used to estimate the value of these structural attributes. Our models estimate both the value of a house and the effect of time on house value to price a typical house over time. We build and compare house price indexes for impact and control areas to determine if house prices were affected by the introduction of 40B developments.

The methodology employed for the qualitative portion of the thesis was originally intended to describe reasons for why residents and municipalities oppose the projects

and ascertain the level and extent of community opposition to the proposed developments during the comprehensive permitting process. We planned to measure the local context of community opposition over time beginning with the initial comprehensive permit application to the Board of Appeals through the final granting of the permit. Primary sources including ZBA meeting minutes, permitting hearing records, ZBA decisions, and court documents were examined to achieve this goal. However, we found another story of a three stage 40B process that commonly pitted towns and developers against one another. This was the case when towns were reactive towards new development allowing developers to propose large, dense projects often completely at odds with the comprehensive and land-use planning in the town. Alternatively, proactive towns are able to negotiate and bargain with developers to create amicable development solutions. We then used these two stories to narrate a much richer and nuanced story through the examination of why a controversial political and institutional 40B process sometimes fails and sometimes succeeds.

OVERVIEW OF ISSUES

Increased housing production is necessary to sustain regional growth and economic viability in Massachusetts, but commonly resistance is fierce to high-density development and the development of multi-family affordable housing. The following section reviews the history of the 40B statute as an effort to combat racial segregation and supercede local restrictive zoning practices, comments on recent housing trends in the state, and gives a brief overview of the local context of exclusionary zoning practices and opposition to 40B developments.

Chapter 40B: A History, Description and Results

Massachusetts' Chapter 40B statute was written in 1969 partly in response to rapid suburbanization during the first half of the twentieth century which "created a geography of inequality that led to the Kerner Commission in 1968 to state that we are 'moving towards two societies, one black and one white – separate and unequal.'"[2] From a contemporary standpoint Chapter 40B (40B) is seen as a law before its time, "based on a remarkably early

recognition by its proponents that exclusionary zoning practices, such as large minimum lot size requirements and bans on multi-family housing, play a significant role in driving up housing costs and causing the dominant spatial pattern of economic and racial segregation found in most metropolitan areas of the United States."[3] The law was intended to stem the tide of widespread segregation in Massachusetts by giving the state the authority to supercede suburban exclusionary zoning regulations.

However the passage of 40B was not completely altruistic. The law was also seen as a chance at retribution for a coalition of urban politicians who wanted to get back at the liberal suburban legislators who forced Boston public school desegregation in 1966.[4] The bill was fiercely contested in the state legislature and in the end passed narrowly in the House and by just two votes in the Senate.[5]

The 40B statute has two main objectives: production and mobility. The production objective is to increase the supply of both affordable and multi-family housing in Massachusetts. The mobility objective is to provide opportunities for low- and moderate-income (particularly minority low-income) families to move out of the concentrated poverty of the inner city into suburban areas with increased educational and economic opportunities.[6]

Specifically, General Law Chapter 40B "was enacted to provide expeditious relief from exclusionary local zoning by-laws and practices which might inhibit the construction of low and moderate income housing in the Commonwealth's cities and towns."[7] Pursuant to the statute, "a qualified builder wishing to build low or moderate income housing may file with a local board of appeals an application for a comprehensive permit instead of filing separate applications with each local agency having jurisdiction over the project."[8] If a local zoning board denies an application for a comprehensive permit, the developer may appeal to the Housing Appeals Committee (HAC), and the HAC will review the decision "to determine whether the board's decision is reasonable and consistent with local needs."[9] The local zoning board has the burden of proving that the development will cause health, safety, environmental effects that outweigh the need for low and moderate income housing. If the HAC finds that the decision of

the zoning board is not reasonable and consistent with local needs, it can direct the issuance of a comprehensive permit by the board.[10]

Chapter 40B is responsible for creating approximately 30,000 housing units, nearly 18,000 of which are privately-owned rental housing units that are affordable to households earning at or below 80 percent of the AMI.[11] Despite the very tight and expensive housing market throughout metropolitan Boston, this desperately needed housing supplied by comprehensive permits is often strongly opposed by local communities and single-family homeowners in part because of a fragmented process which is set-up to pit developers against municipalities.

Housing Trends

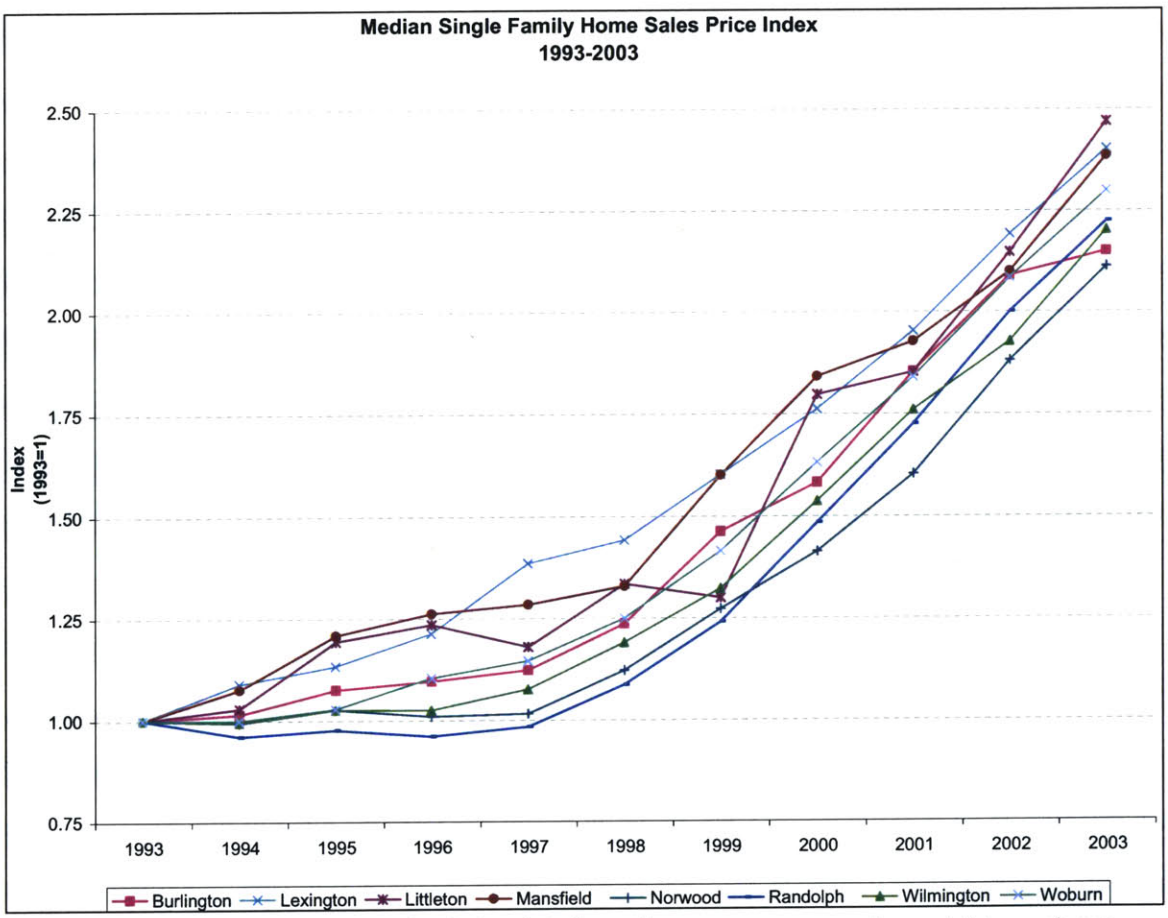
Massachusetts is in the mist of a housing crunch. There is a growing gap between the supply and demand of housing in Massachusetts; this is particularly problematic as many metropolitan communities are at or near build-out capacity. The state's population has continued to grow while the new construction of housing has declined. The Boston metropolitan area's population grew by more than 4.8 percent between 1990 and 2000 according to the 2000 Census, from 2.6 million to nearly 2.8 million residents.[12] Concurrently, while the area's population has been increasing, the number of housing units permitted annually in Massachusetts has declined significantly over the past few decades: from an average of 31,000 units per year during the 1970s to only 17,000 per year throughout the 1990s.

The decline in permitting of multi-family housing is even more striking, dropping from an average of 14,000 per year in the 1970s to 1,300 per year for most of the 1990s.[13] More recently, permits for private housing – apartments, stand-alone homes, and condominiums – in the first six months of 2003 were eight percent lower than in the first six months of 1998, half that of permits issued nationally for the same time periods.[14] Even more striking, according to a recent op-ed article in *The Boston Globe*, Massachusetts ranked 47th in the country in multi-family housing starts in 2002, in the same league as large rural states such as Wyoming and North Dakota with less than 10 percent of the population of Massachusetts'.[15]

Population growth and declining housing production are partly responsible for the

recent explosive spike in housing prices. Another major reason is the artificial constraint on land throughout Boston's metropolitan area imposed by the preponderance of large lot single-family zoning in suburban communities. As can be seen in Chart 1.1, the communities in our study have all seen explosive house price growth in the last ten years, with a median increase of 130 percent, and a median increase of 84 percent in just the past five years.

Chart 1.1 Median Home Sales Price Index for Studied Communities



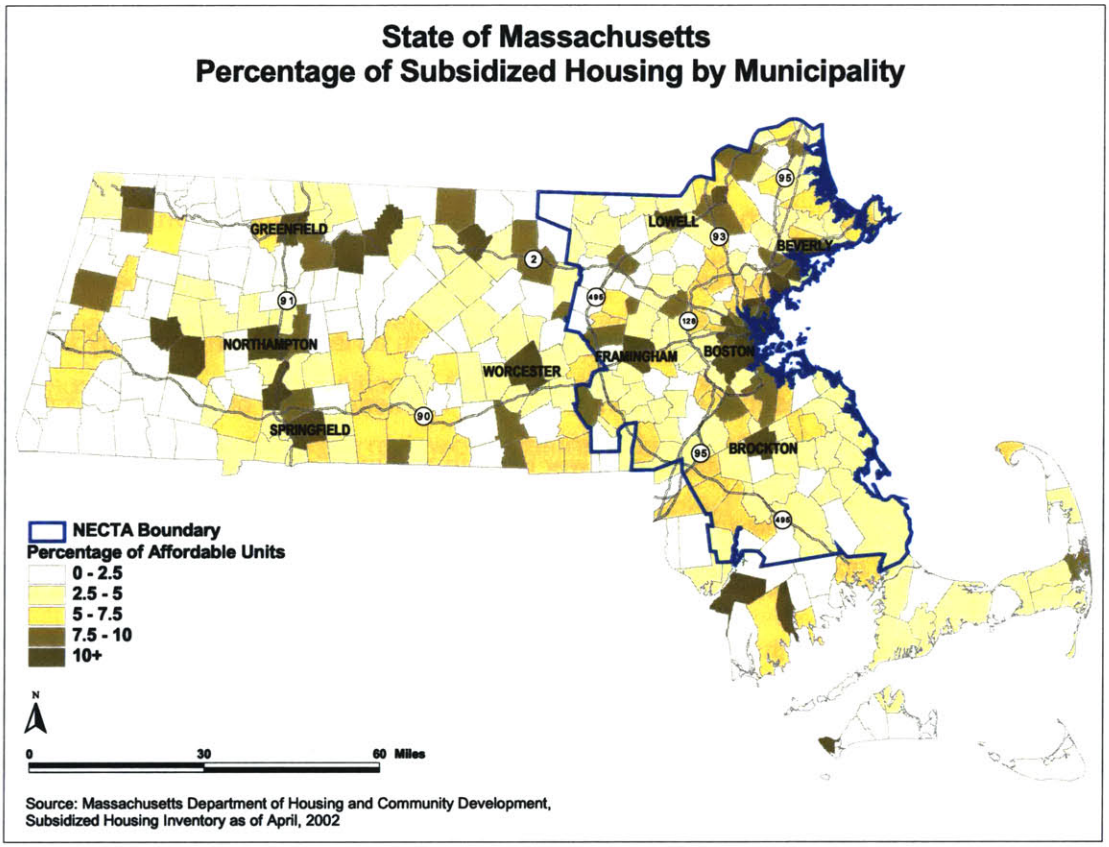
Source: The Warren Group - Town Statistics, http://rers.thewarrengroup.com/townstats/search.asp

Subsidized Housing Trends

Just as housing prices have been rising, so has the amount of subsidized housing. Many argue that subsidized and affordable housing production has not been rising fast enough, falling well short of meaningful benchmarks. The following Figure 1.2 presents the percentage of subsidized housing stock in all of Massachusetts' cities and towns as of April

2002. As can be seen below, the majority of the communities that have reached the goal of ten percent are the cities such as Boston, Lawrence, Lowell, Worcester, and Springfield. The Boston metropolitan area (outlined in blue), with a slightly higher concentration of subsidized housing as a percentage of total housing stock, is still not even close to meeting the goal of developing affordable housing to the level of ten percent of a community's housing stock.

Figure 1.3 Massachusetts' Subsidized Housing Inventory Map



The Boston metropolitan area as a whole has not been successful in reaching the goal of ten percent of the community's housing units deemed affordable. As can be seen in Table 1.1, only eight percent of the metropolitan area's communities have achieved the ten percent goal. Additionally, more than half of the area's communities have less than five percent of their housing stock defined as affordable. However, it is important to note that when Chapter 40B was passed in 1969, only two municipalities in the state met the ten percent minimum; so significant progress has been made, just not close to the actual goals set out by the statute.

Table 1.1 Boston Area Municipalities Subsidized Housing Inventory

Boston Metropolitan Area Municipalities	Number	Percent
Muni w/ 0-2.5% Sub Hsg	24	15%
Muni w/ 2.5-5.0%	69	45%
Muni w/ 5.0-7.5%	33	21%
Muni w/ 7.5-10.0%	16	10%
Muni above 10%	13	8%
Total	155	100%

Source: MA Dept of Housing and Community Development, Subsidized Housing Inventory, April 2002.

Exclusion and Opposition

Exclusionary zoning and local opposition in suburban communities have significantly hindered both multi-family and affordable housing production. Massachusetts' has a strong tradition of home rule by which municipalities are free to pursue their own self-interest irrespective of the constraints and resources of surrounding communities and the metropolitan region. Municipalities use exclusionary zoning practices such as large lot single-family zoning to "manage growth" and "preserve community integrity". These types of land use controls effectively close the door to the suburbs for lower income and working class families under to guise of insulating local residents from the urban problems associated with poverty.

One of the reasons why Chapter 40B has been so contentious is that the law supercedes the control over the most significant tool suburbs have – zoning – to maintain complete autonomy over their community. 40B is seen as a way to force the suburban door open and in doing so letting in lower-income families and the problems of urban poverty. Residents are loath to accept 40B developments in their neighborhoods and spare no effort to block comprehensive permit applications. There are scores of websites and protest groups with a primary mission of destroying the statute. One such group from Marshfield wrote a song to protest 40B posted on their website (to be sung to the tune of The Beatles' "Let it Be"):

> When I find myself without a permit / D., H., C., D. comes to me / Speaking words of dollars, 40B
>
> And in my search for profit / It is standing right in front of me / Speaking words of dollars, 40B / 40B, 40B, 40B, 40B / Whisper words of dollars, 40B
>
> And when the angry people who are / Living in the town agree / They must fight injustice, 40B / For though they may be targets, there is / Not a chance that they'll concede / They

> will find an answer, to 40B / 40B, 40B, 40B, 40B / yeah They'll find an answer, to 40B / 40B, 40B, 40B, 40B / Whisper words of dollars, 40B.[16]

The arguments presented in opposition to 40B developments are numerous and often pertain to traffic and congestion, architectural design and contextual sensitivity, property value, municipal budgeting, and environmental impacts. We believe that when you cut through the rhetoric most often citizen opposition can be distilled to a fear of neighborhood devaluation. Thus residents are acting in the interest of wealth preservation by protecting the value of the asset that is most often the largest component of an individual's investment portfolio.

THESIS ORGANIZATION

In the following chapters we review relevant literature, detail our research methodologies, examine the impact of 40B developments on surrounding property values, and present new findings regarding the opposition to 40B projects and process.

Chapter 2 consists of a review of literature addressing the triad of local political autonomy, zoning and exclusionary practices; the economic backed expectations of homeownership; community opposition trends; and the effect affordable housing has on surrounding residential property values in other metropolitan areas.

Chapter 3 describes the case selection process and identification of each impact areas. Our diligent treatment of these issues sets this thesis apart from other studies and establishes our objective perspective.

Following the case selection, Chapter 4 outlines the theoretical framework for using hedonic modeling and details the specific econometric methodology used in this study.

Chapter 5 presents our empirical findings. We describe each impact area and review the results of each case study by discussing the price indexes and explaining the components of each hedonic model.

Chapters 6 details the methodology employed for the qualitative portion of the study. In Chapter 7, the authors use primary sources to narrate the comprehensive permitting processes

for each case study and examine why a controversial political and institutional 40B process sometimes leads to either failure or success.

Chapter 8 concludes the thesis and ties the findings from the quantitative and qualitative studies together. The authors pay special attention to the conditions under which 40B developments were permitted with particular emphasis on the comprehensive permitting process as each case study is unique. Our results inform a conclusion about the validity of resident opposition to 40B developments based on the assumed diminution of property value and provide additional insight on some of the dysfunctional consequences of the 40B statute.

(Endnotes)

[1] "Requirements and regulations shall be considered consistent with local needs if they are reasonable in view of the regional need for low and moderate income housing considered with the number of low income persons in the city or town affected and the need to protect the health or safety of the occupants of the proposed housing or of the residents of the city or town, to promote better site and building design in relation to the surroundings, or to preserve open spaces, and if such requirements and regulations are applied as equally as possible to both subsidized and unsubsidized housing. Requirements or regulations shall be consistent with local needs when imposed by a board of zoning appeals after comprehensive hearing in a city or town where ... low or moderate income housing exists which is in excess of ten per cent of the housing units reported in the latest federal decennial census of the city or town or on sites comprising one and one half per cent or more of the total land area zoned for residential, commercial or industrial use." Source: M.G.L. c.40B, § 20 – Definitions.

[2] Stonefield, Sam. *Symposium: Affordable Housing in Suburbia: The Importance but Limited Power and Effectiveness of the State Override Tool*, 22 Western New England Law Review, 2001.

[3] Krefetz, Sharon Perlman. *The Impact and Evolution of the Massachusetts Comprehensive Permit and Zoning Appeals Act: Thirty Years of Experience with a State Legislative Effort to Overcome Exclusionary Zoning*, 22 Western New England Law Review, 2001.

[4] Stonefield, 2001.

[5] Krefetz, 2001.

[6] Stonefield, 2001.

[7] *Zoning Board of Appeals of Greenfield v. Housing Appeals Committee*, 1983.

[8] *Zoning Board of Appeals of Wellesley v. Housing Appeals Committee*, 1982.

[9] *Wellesley ZBA v. HAC*, 1982.

[10] *Wellesley ZBA v. HAC*, 1982.

[11] Heudorfer, Bonnie. *The Record on 40B: The Effectiveness of the Massachusetts Affordable Housing Zoning Law.* Citizens' Housing and Planning Association, June 2003.

[12] For the purposes of this study, the Boston metropolitan area is defined as the 155 municipalities in the Boston-Cambridge-Quincy New England Metropolitan City and Town Area (NECTA) Census area.

[13] Heudorfer, 2003.

[14] Reidy, Chris. "Builders: Permit process boosts costs," *The Boston Globe*, July 29, 2003.

[15] Hindman, Matthew. "A worthy strategy for affordable housing," *The Boston Globe*, March 27, 2004.

[16] Marshfield Action, Inc. "The 40B Song," http://marshfieldaction.com/Comic_Relief/40bSong.htm.

CHAPTER 2: LITERATURE REVIEW

The following chapter is a review of literature regarding political autonomy, the evolution of exclusionary zoning, the rise and role of homeownership in the United States, and trends in neighborhood opposition. The literature reviewed in these three sections is intimately connected, in that the political autonomy of suburban communities gave rise to the ability of suburbs to practice exclusionary zoning. At the same time, suburbs were gaining more autonomy and implementing restrictive zoning practices, homeownership rates were quickly rising. The more the suburbs became populated primarily with homeowners, the stronger the political influence these homeowners had, and the stronger their desire to protect the investment they made in their homes. Homes became an investment good in addition to a consumer good where people were just purchasing a place to live. Houses began to rapidly appreciate and consumers started financing at higher loan-to-value ratios, making homeowners more averse to any risk in their investment. Exclusionary zoning helped to protect them from the risk that undesirable uses would be placed next door and thus negatively impact house prices. The 40B statute is an effort to confront exclusionary zoning directly and override the "closed" nature of many Massachusetts communities. There are many competing social and economic theories on the fore mentioned subjects. We present some the relevant thinking to frame this thesis's question. It is not our intention to prove or disprove any of the referenced literature. The chapter concludes with a review of other hedonic studies examining the impact of affordable housing development on surrounding property values.

POLITICAL AUTONOMY, ZONING, AND EXCLUSION

The connection between political autonomy, zoning and exclusionary practices are strong, especially in a state such as Massachusetts which has one of the strongest traditions of home rule and affords local municipalities more political autonomy than most states. It may seem obvious to contemporary observers how these three actors have coordinated to create a homogenized and often segregated suburban landscape. The original grant of authority to local communities to incorporate and self-govern and the subsequent reinforcement of their power to control land use and development through zoning was probably not intended

to fragment regional politics and promote a misallocation of the region's natural, social and economic resources. However, municipalities with local control act in their individual best interest irrespective of the resources and needs of the larger community. Zoning is a blunt but effective tool used by municipalities to guide land development and define community character. The desire for community preservation coupled with the large-lot single-family zoning pervasive throughout Massachusetts has effectively closed the door to the suburbs by artificially inflating housing prices. This section reviews the tradition of local power and the evolution of zoning and how these two actors contribute to the exclusionary attitude of suburban communities in metropolitan Boston.

Political Autonomy

In his "Suburban Autonomy" chapter in *The Politics of Urban America*, Michael Danielson discusses how "suburbia" has become essentially a political phenomenon. Suburbs have wished for, and been granted, local autonomy which allows they to "control their own destiny largely free from the need to adjust their interests to those of other local jurisdictions and residents of the metropolis."[1] This political autonomy allows suburban governments to control their community however they see fit, even at the expense of other jurisdictions. Danielson comments:

> Since local governments in the United States bear the primary responsibility for the provision of basic public services such as education, police and fire protection, as well as the regulation of housing and land use, independence provides suburbs with considerable control over the vital parameters of community life, including the power to exclude unwanted neighbors.[2]

Gerald Frug in *City Making* discusses suburban autonomy as a method for maintaining a significant level of community homogeneity. To achieve this, the state had to grant suburban communities: "the right to incorporate as a separate municipality; immunity from annexation by the central city; the ability to exercise land use control; the ability to legislate and provide services solely in their own self-interest; the authority to tax the real property located within municipal boundaries and to spend the revenue collected solely on local residents."[3]

According to Robert C. Wood, quoted in Danielson's chapter, political autonomy has created metropolitan populations that have been broken up into "clusters homogenous in their skills and outlook which have achieved municipal status and erected social and political barriers

against invasion."[4] This suburban homogeneity is self-reinforcing, the more homogenous a community becomes leads to an increased desire for exclusion.

An explanation for the advance of these homogeneous clusters is offered by Arthur O'Sullivan in his book *Urban Economics*. Suburban income segregation is the product of three factors. The first being the relationship between the housing demand of wealthy residents and the growth of cities. Wealthy residents demand high-quality housing and prefer to occupy new housing rather than old housing. In a growing city, developers construct new, high-quality housing in suburban areas where land is available. So, wealthy residents move to the suburbs leaving lower-income residents to occupy the older urban housing stock. The second reason wealthy residents leave the center-city is to isolate themselves from the problems associated with low-income residents. The problems to avoid include crime, municipal fiscal shortcomings and under-achieving schools. The third reason for leaving the central city is for suburban zoning. Suburban governments can zone to exclude low-income resident thus providing insulation from urban problems.[5]

Suburban Exclusionary Zoning

Wealthy residents found it appealing to segregate themselves away in the suburbs and take refuge in suburban zoning, but why was zoning originally conceived and enacted in the first place and how have local governments maintained the power to zone and in some cases intentionally exclude?

The traditional and rarely challenged explanation for the advent of zoning stems from the need to expand the power, efficiency and breadth of nuisance law and the ad hoc networks of private land covenants. Leading up to the turn of the twentieth century incompatible land uses were competing for the same or adjacent urban real estate. Heavy industry and apartment buildings were encroaching residential neighborhoods. New York City is credited for enacting the first zoning ordinances in 1916, yet many cities in other parts of the country were developing similar ordinances at this time. Within twenty years a majority of municipalities in the United States had adopted zoning ordinances. The intention of early zoning was to protect the public good by ensuring adequate access to light and air, freedom from fire and panic, and the preservation of morals. Atop the zoning hierarchy is the single-family house.

A slightly different explanation for the rise of zoning is put forth by William Fischel. The

nuisances which are attributed for motivating zoning ordinances in the early twentieth century were certainly present and abundant during the later half of the nineteenth century so why wasn't zoning employed sooner? Zoning had been implemented in Europe since the 1870's. Fischel theorizes that zoning in the United States is in response to the economic interests of homeowners desiring to protect the value of typically the largest asset in one wealth portfolio, the single-family house. In summary he argues that zoning arose because:

> (a) new modes of transportation allowed people to separate where they lived from where they worked and (b) the development of the bus and truck undermined traditional means of protecting neighborhoods. Zoning was preferred to (or added to) covenants because it protected the borders of covenanted land and could protect the municipal tax base and service demands. That ability in turn made it attractive for suburban municipalities to maintain their independence from the central city.[6]

Fischel explains that an economic rationale for zoning incentivized homeowners to become the dominate voice behind suburban land use controls beginning as early as the 1920's. "Homeowners were numerous, well motivated, and lived in contiguous districts that reduced the transaction costs of political organization. Having staked their savings in their communities' character, homeowners became a major force in local politics. They supported zoning, which had originally been proposed by homebuilding developers, and they made their homes the primary object to be protected."[7]

Regardless of the intentions behind zoning, the validity and practice of zoning was affirmed by the 1926 U.S. Supreme Court ruling in *Euclid v. Ambler Realty* zoning case. Euclid is a suburb of Cleveland, Ohio and in 1926 Ambler sued the Village of Euclid stating that the village's zoning ordinance restricted and Ambler's use of their property. The Supreme Court upheld the ordinance, concluding that the segregation of residential, business, and industrial uses is paramount to an owner's property rights. The ruling specifically endorses the separation of residential uses and the need to protect "the safety and security of home life."

> With particular reference to apartment houses, it is pointed out that the development of detached house sections is greatly retarded by the coming of apartment houses, which has sometimes resulted in destroying the entire section for private house purposes; that in such sections very often the apartment house is a mere parasite, constructed in order to take advantage of the open spaces and attractive surroundings created by the residential character of the district.[8]

The ruling goes on to conclude that the more apartment houses built, the more will come, "until

finally, the residential character of the neighborhood and its desirability as a place of detached residences are utterly destroyed."[9] The Euclid case determined that zoning and land use controls are meant to protect and preserve property values and neighborhood character as well as exclude undesirable uses. Another result of Euclid was that the Supreme Court upheld (and later encouraged) the ability of a small local government to regulate land use as opposed to regions or states.[10]

The Euclid case created a land use climate that gave rise to what is often referred to as exclusionary zoning. This term refers to the ability of communities to create zoning districts which "exclude apartments, mandate large-lot single-family homes, and separate uses."[11] A primary motivator for exclusionary zoning regulations is "the desire to avoid the negative effects of concentrated poverty. Suburbanites have a 'fear of falling' – a fear that a sudden influx of poor people may cause the whole area to decline. They deal with this fear by banning apartments and requiring large lots for single-family homes."[12] In the Boston metropolitan area, the banning of multi-family and higher density smaller single-family housing performs two un-spoken and underlying functions: (1) keeping out the undesirables, and (2) driving up housing prices making any sort of affordable housing out of reach for work class and many middle class families.

America's rapid suburban development and the rise of suburban political autonomy in the early twentieth century created the tendency for exclusionary zoning practices. Many of the reasons for suburban exclusionary zoning, which has contributed to wide disparities regarding the availability of affordable housing between central cities and their suburbs, concern the fears of affordable housing and deflated property values.

Danielson connects the relationship between suburban politics and exclusionary practices. This exclusion is achieved through controls such as zoning and building codes which can be easily manipulated by residents in suburban communities but not urban neighborhoods. These controls "protect the local turf from undesirable housing and residents."[13] Additionally, "The use of local powers over land, housing, and urban development to promote local social views and protect community character are widely viewed as the most important functions of local governments in suburbia."[14]

Even if local autonomy was not among the primary reasons for moving out the central

city and into the suburbs, "most suburbanites quickly discover the utility of local autonomy as a means of protecting their neighborhood, their social standing, their property values, and the racial integrity of the local schools from outside threats."[15] Frug discusses exclusionary zoning at length in *City Making*. He comments that the "basic purpose of suburban zoning was to keep Them where They belonged – Out. If They had already gotten In, then its purpose was to confine Them to limited areas."[16] To this point, Danielson asserts that greater political independence "strengthens the suburban community's ability to exclude, while the desire to exclude both enhances the attractions of local autonomy and reinforces the suburban commitment to the preservation of local control over the vital parameters of community life."[17] In effect, the two forces of political autonomy and exclusionary practices have reinforced one another and contributed to the desire for even more local control and power.

Greater local political autonomy creates a climate where there is less interference and involvement from regional and state actors. According to Danielson, "suburban governments have been able to use their autonomy to influence housing opportunities with relatively little outside interference. And because land-use patterns strongly affect local taxes and public services, community character, and the quality of local schools, zoning has become the essence of local autonomy for most suburbanites."[18] This is one of the reasons why Chapter 40B has been so contentious; the law supercedes the control over the most significant tool suburbs have – zoning – to maintain complete autonomy over their community.

In a Virginia Law Review Note on Chapter 40B, Paul Stockman, reiterates this concept of exclusion with the assertion that "many municipalities suspiciously claim to use zoning to 'preserve the character of the neighborhood.' Although this sounds innocuous, such language is frequently 'a code for the desire to preserve economic, ethnic and racial homogeneity.'"[19] In addition to keeping "undesirables" out of their municipality, suburban governments present fiscal arguments supporting exclusionary zoning. Stockman contends that:

> many municipalities impose restrictive zoning laws in an effort to protect the tax base and to keep local residential property taxes low... Municipal planners assume that apartments and smaller homes, generating less taxes, are occupied by families with lower incomes and more school-age children, who consume a greater share of municipal resources. Large, single-family homes on spacious lots, on the other hand, generate more revenue and attract wealthier residents who place fewer demands on the municipality. Although theoretically intuitive, these assumptions are largely empirically unwarranted.[20]

The theory that multi-family and dense developments generate a higher need for services while contributing less in local taxes has been put into question by numerous studies. One such study is the Citizens' Housing and Planning Association's (CHAPA) analysis on the fiscal impact of housing development in Massachusetts which found, among other things, that for many communities in Massachusetts, population growth from new housing development does not inevitably increase demand for services and raise municipal costs. The authors find there is little correlation between increases in per capita costs and increases in population, and in Massachusetts, the cost of municipal services are increasing regardless of growth.[21]

The effect of exclusionary zoning on the housing prices is felt both locally and regionally. A 2003 study conducted by Glaeser and Gyourko for the Federal Reserve titled "The Impacts of Building Restrictions on Housing Affordability" concludes that in regions with very expensive housing, building restrictions such as zoning appear to be the cause the high housing prices.[22] The study estimated that in metropolitan Boston, 85 percent of suburban houses are 87 percent more expensive than the cost of construction.[23] The implication of Massachusetts' exclusionary zoning is that housing prices are higher for everyone in the region.

This has become a serious problem not only for low-income families but also the middle class with the recent rapid rise in housing prices in Massachusetts. According to Stockman, "Exclusionary zoning once served merely to keep out the poor; now it constrains the dreams of even the middle class. Many children of the suburbs find that they no longer can afford to live in the communities where they grew up. Teachers, firemen, and policemen often cannot live among those they serve because of the restrictive costs of housing."[24] It is ironic that the children and grandchildren of the original suburbanites responsible for developing these restrictive zoning and land use regulations are now often unable to live in these communities.

THE RISE AND ROLE OF HOMEOWNERSHIP

America has a strong tradition of fostering and encouraging homeownership. According to the proponents of homeownership, it brings a cornucopia of economic and social benefits to American society. Homeownership proponents claim it is key to the American Dream, the hallmark of American society, and that owning one's home is the path to social and economic

mobility. A large bode of literature gives provides support for the value of homeownership which includes increased civic participation, neighborhood stability, high educational attainment, better gardens, high self esteem, better physical and physiological health (as long as the household is current on its mortgage payments), and greater attachments to place.[25]

The country's ideological commitment to homeownership traces back to the nineteenth century when Thomas Jefferson pursued the Louisiana Purchase with the vision of a country based upon independent citizens with their own land and homes.[26] Scores of American politicians and political commentators since Jefferson have espoused the benefits and need for homeownership. To quote Walt Whitman, "A man is not a whole and complete man unless he owns a house and the ground it stands on."[27] In the 1920s, the praise of homeownership continued with Calvin Coolidge pronouncing "No greater contribution could be made to the stability of the nation, and the advancement of its ideals, than to make it a nation of home-owning families."[28] Herbert Hoover in 1931 stated that homeownership "is both the foundation of a sound economic and social system and a guarantee that our society will continue to develop rationally as changing conditions demand."[29] Sixty years later, Bill Clinton continued the support of homeownership, affirming that "throughout the life of our nation, nothing has been more important as a building block ... than homeownership."[30]

The National Association of Realtors (NAR) is one of the largest, most outspoken advocates for homeownership. According to the NAR,

> Homeownership is the cherished goal of people everywhere, but nowhere more so than in America. To individuals, it is their key to the American Dream – their key to living the good life. Beyond the benefit of individual satisfaction, homeownership provides two other major benefits. First, it provides economic benefits through its contribution to total economic output and to savings. Second, it benefits society. Homeownership is the thread that binds the fabric of a democratic society together by fostering community pride, social participation, and political stability.[31]

The NAR claims that nearly nine out of ten Americans feel that owning one's home is the key to the good life, placing greater value on homeownership than owning a car, a good marriage, or an interesting job.

Home as an Investment

A home is not just a place to live; it also brings a number of financial benefits to homeowners. Increasingly, houses have become "both consumption and investment goods.

At the time of purchase, owners make two different decisions simultaneously. They choose the quantity and configuration of amenities ... while at the same time attempting to maximize their expected financial return."[32] Homeowners are not just purchasing a home to have a decent, clean, safe place to live; they are buying homes because they are a good investment.

This argument is central to McCarthy et al's study of the economic benefits and costs of homeownership, where the authors affirm that "Homeownership is a commitment to personal financial security. Through homeownership a family acquires a place to live and raise children and invests in an asset that can grow in value and provide the capital needed to start a small business, finance college tuition, and generate financial security for retirement."[33] According to the authors, on average, a suburban homeowner enjoyed a 40 percent increase in house price between 1987 and 1997.[34] As was stated in the introductory chapter to this thesis, the communities in our study have all seen explosive house price growth from 1993 to 2003, with a median increase of 130 percent, and a median increase of 84 percent in just the past five years.

Not only are homeowners making a financial investment, they are also investing in their family's success. James Johnson, in *Showing America a New Way Home: Expanding Opportunities for Home Ownership,* backs up this claim, asserting that "Buying a home is not only a financial investment (the greatest one most families make), it is also an investment in the stability of a family – and consequently the health of a society."[35] According to Johnson, owning one's home is an investment that not only benefits the individual family, it is an investment that benefits the block, neighborhood, and society as a whole.

However, not every study proves that homeownership is indeed the best housing tenure decision for all people; some studies claim that homeownership is not the best investment decision as well. The focus on homeownership as a wealth generating mechanism is not necessarily true for all homeowners. Homes are assets for their homeowners, but their values are tied to a wide range of externalities such as neighborhood quality, economic stability, school district expenditures, and regional job markets. They are therefore highly depreciable and can be fraught with risk.

Daniel Luria, in "Wealth, Capital, and Power: The Social Meaning of Home Ownership," defines wealth as the sum of physical and financial assets whereas capital is a part of wealth

that enables its holder to control the labor of others. In his study, Luria makes assessment that "Homes, although they may constitute a form of wealth in an accounting sense, do not in general form a part of that wealth which grants control over one's life; *homes may be wealth but they are not capital*."[36] [Emphasis in original] In other words, a house is contributing to the homeowner's net wealth, but it is not literally putting money in their bank account and contributing to bettering their daily financial condition.

One of the problems with the increased focus on homeownership as a stable equity investment is that a house's success as an investment is often dependent on externalities over which the homeowner often has little control, such as neighborhood quality. Constance Perin, quoted in Frug's *City Making*, comments:

> Home ownership in a 'nice' neighborhood is often seen as the top rung in the long climb up the ladder of life. Such an achievement can easily be threatened if the neighborhood standards decline, and this decline is likely to be produced, people feel, by neighborhood diversity – in particular, by the presence in the neighborhood either of renters or of homeowners who cannot afford houses like one's own (whatever the price).[37]

McCarthy et al in *The Economic Benefits and Costs of Homeownership: A Critical Assessment of the Research* comment that these externalities affect the return on a homeowner's investment. "Because most homeowners are highly leveraged ... house price appreciation and depreciation have an amplified impact on the rate of return on housing investment. In contrast to strictly financial investments, the return on homeownership is directly affected by the behavior of the owner and other nearby owners."[38] Additionally, the more leveraged the house is (the higher the ratio of the mortgage to the actual value of the house), the more risk the homeowner faces of devaluation from often uncontrollable externalities. The authors' report makes a number of conclusions primarily advocating the financial benefits of homeownership, but importantly, they also confirm that owning a home is not a guaranteed investment strategy. "Housing investment ... suffers more extreme events than other assets. This, in addition to the fact that homeowners tend to hold a larger-than-optimal portfolio share in housing, exposes owners to higher overall portfolio risk."[39]

Edel et al in the 1984 book, *Shaky Palaces; Homeownership and Social Mobility in Boston's Suburbanization*, analyze the historical trends in homeownership in the Boston

metropolitan area. In their study, the authors found that home values in the region have often been at the mercy of externalities such as neighborhood decline and public expenditures. Edel et al observed that a home

> is in one sense a consumer good, an alternative shelter to the apartment, the boarding house, or the communal dwelling. The private home is also an investment in the land on which it is located, and an admission ticket of sorts to a particular community and political jurisdiction. It is thus subject to depreciation of various kinds... It could decline in value if its property is affected by changes in economic activities or access; if the surrounding community deteriorates; or if public services decline and taxes rise in its political jurisdiction, or even if other communities duplicate its services.[40]

Of course, home values routinely rise, and have done so steadily over the last decade in the Boston area; the authors make very clear that there are numerous economic forces that can possibly reduce their value.

Daniel Luria's article examines the relationship between homeownership and wealth versus capital investments through the examination of suburban Boston homeowners from 1890 to 1910. Luria's study found that "homeownership appears to have been of little help to either the occupational or total wealth mobility of owners or their sons, and tended to tie up a large portion of peoples' assets in an investment inferior to most."[41] Luria contends that fostering homeownership is not a remedy for differences between owners and renters or even racial and economic inequalities in American society as so often is claimed: "There is little evidence, at least in the period studied, that owners gained relative to renters. It does seem to have been true, however, that owners tied up what savings they had in a form unlikely to change the distribution of social power in a way beneficial to the working class."[42]

The Homevoter Hypothesis

William Fischel, in *The Homevoter Hypothesis*, argues that home values are the largest part of most people's assets and that municipal taxes and expenditures directly translate into the value of that asset. According to Fischel,

> The reason that local governments perform better is that the benefits and costs of local decision making are reflected in the value of property in the jurisdiction. The homevoter hypothesis holds that homeowners, who are the most numerous and politically influential group within most localities, are guided by their concern for the value of their homes to make political decisions that more efficient than those that would be made at a higher level of government.[43]

Therefore, homeowners, or "homevoters" as Fischel calls them, will advocate and lobby in their local communities to adopt the mix of policies that maximize the value of their primary assets. Rohe et al in their study on the social benefits and costs of homeownership concur with Fischel's assessment with regard to the financial incentive for homeowners to be active in their communities:

> Owners often incur significant expenses in both selling their existing homes and buying a new one. If a deterioration in neighborhood conditions forces homeowners to move, it can result in thousands of dollars in costs. Thus, there is a greater economic incentive for owners to join neighborhood or community associations that work to maintain physical and social conditions in their neighborhoods.[44]

As the share of the home increased as part of a family's total wealth, homeowners not only want to maximize the value of that asset, they also want to ensure that nothing will adversely impact that asset such as new development, and in particular, affordable housing development. Fischel argues that zoning controls, like minimum lot size zoning and excluding multifamily development, act as a kind of home equity insurance.[45]

Rohe et al support Fischel's argument, but also discuss the darker side of the homevoter hypothesis. The authors observe that homeowner groups often engage in efforts to exclude various social groups such as racial and ethnic minorities and renters "thinking that their inclusion would threaten both their economic and social-psychological investments there. Participation at the municipal government level may also result in policies, such as exclusionary zoning, that greatly restrict the ability of lower-income families to move into communities."[46] They conclude that one of the most compelling theories for why homeowners participate in local government "is that they seek to protect the economic investment in their homes."[47]

NEIGHBORHOOD OPPOSITION

Neighborhood opposition to new development is a result of numerous motivations, be it community characteristics, development characteristics, or just notions of the impact of development on the surrounding community. Rolf Pendall, in his article "Opposition to Housing; NIMBY and Beyond," studies the residential development approvals process in the San Francisco Bay Area to examine the Not in my Back Yard (NIMBY) theory. He finds that

residents not only have many reasons for opposing new development, but that opposition is significantly dependent on community characteristics and the relationship between the type of development to the community in which it is proposed, in other words, *context matters*. Pendall is aware that there is not a single motivation that explains all the opposition to new housing, be it concern for diminished property values or neighborhood quality, racial or class antagonism, degradation of services such as schools, parks, open space, or impacts on property taxes and fiscal health, and finally environmental degradation.[48]

Pendall studied opposition to new development in the San Francisco Bay Area, whose "residents are among the best educated and wealthiest in the 25 largest metropolitan areas in the United States and thus the most likely to mobilize against threats to their quality of life,"[49] similar to the residents of metropolitan Boston. In determining the motivation for opposing development, he examined three forms of protest/opposition: speaking at public meetings, letters, and petitions. One of his primary initial findings was that when residents protested against proposed developments on adjacent property, "most commonly, they expressed these concerns because they lived in nearby single-family housing and wanted to maintain their privacy or property values."[50]

Pendall also examined three community characteristic variables: income, dependence on property taxes, and recent issuance of building permits (residential growth rate), to study how they influenced opposition to new development.

The study of the relationship between community characteristics and opposition to new development produced both expected and unexpended findings. Not surprising, projects that were much more likely to generate opposition by neighbors were: (1) sited next to single family housing; (2) multifamily and affordable developments, despite that few protests specifically referred to affordable housing; and (3) in slowly growing communities. Also, projects proposed on sites where development proposals previously failed all significantly contribute to increasing the controversy of the project. Finally, projects in higher income communities generated fewer protest than those proposed in lower income communities.[51]

THE EFFECTS OF AFFORDABLE HOUSING ON PROPERTY VALUES

Attempts to decipher how affordable housing affects adjacent residential property

values are not new; studies on this topic have been conducted for decades and in many cities throughout the country. We will first discus methodologies developed for measuring the localized effects of housing externalities; then we review relevant studies.

The literature deals with two basic methodological issues: (1) how to capture the effect of affordable housing and (2) how to compare prices. Two methods for measuring the effect of affordable housing are presented in the following literature. One method is to establish a control area and test area and then create price indexes for both areas. The difficulty with this is finding nearly-identical neighborhoods to compare. The other method is to use one sample and isolate distance. There are problems with this method also, like how to measure distance: following the street pattern or as the crow flies.

There are three ways to approach the second issue of how to compare prices. The first is outmoded; it looks at average or median prices between control and test areas. This looses all the detail and makes it difficult or impossible to assign price changes to particular attributes. The second method is to measure the changes when the same unit sells at least twice during the study period. Because this measures change for the same unit no additional attributes for the property and neighborhood are required. There are draw backs to this repeat sales approach: only properties which sell twice can be used and there is not a good way to account for alterations in the property which may affect value. The third method is to use hedonic modeling to regress sales price against structural characteristics of the property and neighborhood variables. This technique can be very precise but it has more stringent data requirements to be effective. This study employs the hedonic method, more details are provided in Chapter 4.

For purposes of this review, we sorted previous studies into two general categories based upon research methodology. The division of studies by methodology nicely correlates with when a study was conducted. The first category is of primarily older studies that use weak methodologies that call in to question the validity of their results. Meanwhile, a second category of recent studies employing sophisticated and rigorous analyses present sound results. It is shown in many of studies that the nature of the affordable housing matters; the regulatory program used to construct the affordable housing (Section 8, Low Income Housing Tax Credits (LIHTC), etc.) as well as project characteristics such as building typology, design, tenure, and

occupant profile affect property value differentially. Consequently, this literature review will highlight many studies but focus on the second category of methodologically rigorous studies that examine the construction of new affordable housing developments.

In the briefest overview of the first category of studies, the results of older studies tend to conclude that property values are not detrimentally affected by a proximal location to affordable housing units, and in some cases affordable housing had a positive affect on property value (Guy, Hysom, Ruth 1985; Rabiega, Lin, Robinson 1984; Warren, Aduddell, Tatalovich 1983; Saunders Woodford 1979). The majority of these studies prior to 1990 simply compare a test area against a control area. The test and control neighborhoods were chosen to be similar with one another. Property values of homes in the two areas were then compared. The problems with this methodology are that: (1) many of the factors that influence housing value were not controlled for; (2) the data was cross-sectional, meaning trends in housing value over time were available (except Rabiega et al., 1984); (3) small sample sizes were used; and (4) the delineation of test areas were completely subjective to the researchers opinions.

A 2000 study conducted by Maxfield Research Inc. entitled "A Study of the Relationship Between Affordable Housing and Home Values in the Twin Cities" also fits into this first category. This study concludes there is no evidence to support the claim that LIHTC family rental developments eroded the property values in the subject areas. However, the methodology used for this study is similar that used in the studies conducted prior to 1990. A subject neighborhood was compared to a control neighborhood in the same sub market. Many of the same faults of studies in the first group are applicable to the Maxfield study. Multiple regression analysis and hedonic price modeling were not used; thus it is difficult to accept that an accurate relationship between affordable housing and property values can be determined based on the methodology.

The second category of more recent studies better controls for the many factors, both internal and external, that may affect property value, specifically the influence of nearby affordable housing. These studies use either repeat sales or hedonic modeling to create price indexes.

A 1999 study by Briggs, Darden, and Aidala examines the construction of seven public housing developments in Yonkers, New York. This study is similar to our research in that

developments were politically charged and contested, and the physical characteristics of the public housing developments are similar to some 40B developments we examine. In the Briggs et. al study, the physical characteristics of each public housing development and demographic traits of their occupants were all the same, however the size and political reception varied with the location of the developments. Additionally, the demographics of public housing residents were significantly different from the host neighborhoods in which the developments were located. No evidence of "panic" sales was found in the few years after the occupation of the developments and Briggs et al. conclude that public housing built in predominately white middle-income areas does not affect the value of adjacent residential property.

Cummings and Landis (1993) study the impact of six new affordable housing developments in California constructed by the non-profit BRIDGE Housing Corporation. All but one of the developments had either no effect or a positive effect on housing sales values. Cummings and Landis posit that design and construction quality influence the type of effect (positive, none, or negative) affordable housing will have on surrounding house values.

Weinstein (2002) examines three new affordable housing developments in the San Francisco Bay area that were also developed by BRIDGE Housing Corporation. The units in all three developments are 100 percent affordable. The study uses hedonic price modeling to create comparative price indexes for a "constant quality house" in a test area and control area. In all cases the house prices in the test areas and control areas trended identically (there was no statistically significant variation) after the introduction of affordable housing. This study follows the example set by Ms. Weinstein as she successfully controls for the many factors that influence house prices to create price indexes that capture the impact of affordable housing as it is built, occupied and integrated into residential neighborhoods.

Goetz, Lam and Heitlinger (1996) analyze affordable housing developed and renovated by community development corporations in Minneapolis. This type of affordable housing was found to have positive effects on nearby property values. Goetz et al. studied public housing and privately owned subsidized housing as well. However, these types of affordable housing were found to devalue property.

Studies in the second category generally conclude that quality design and construction plus contextual sensitivity can mitigate the impacts of proximal new affordable housing on

surrounding property values. Well designed and well sited affordable housing does not necessary diminish residential property values even if the projects are strongly contested. Locating affordable housing in a neighborhood with a strong housing market is advantageous to maintaining property value. In these cases, existing neighborhood amenities continue to outweigh the potential dis-amenity of new affordable housing development. In cases where affordable housing was found to negatively impact property values, the amount was relatively small when the analysis controlled for other neighborhood characteristics.

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[51] Pendall, pg. 127-130.

CHAPTER 3: CASE SELECTION

This chapter summarizes the methodology employed to first select the set of Chapter 40B multi-family rental developments to study, and, second, designate a conservative and appropriate impact area around each of the study cases. The case selection process section describes the detailed and orderly system used for finding an appropriate group of case studies. All of the studied developments had to meet the following criteria: located within the Boston metropolitan area, permitted between the mid-1980s and 2000, rental tenure structure, and finally, they had to be embedded in a single-family residential neighborhood. The impact area section describes how we determined the appropriate, realistic number of single-family homes likely to be affected by the Chapter 40B development. These impact areas are established to examine price effects over time as the developments are announced, built, occupied, and beyond.

CASE SELECTION PROCESS

The case selection process began with an examination of developments having used Chapter 40B to obtain zoning relief. The Citizens' Housing and Planning Association (CHAPA), in their June 2003 report on the effectiveness of Chapter 40B, assembled a list of all 40B developments, totaling 491 projects. Table 3.1 is a compilation of summary statistics for the complete 40B project list. The mean project size is 58 units with a standard deviation of 60 units around the mean; these two parameters indicate that the majority of projects are 120 units or less in size. The median of the inventory list is a 37 unit project, and the most common sized project is only 8 units. Evidence shows that most 40B projects are in fact relatively small; a reality in opposition to the common assumption that all 40B projects are the big, high-density developments feared by residents at public meetings. The largest size of any one permitted development is 312 units. However, this maximum development size is somewhat misleading for the reason that in projects with multiple phases, each phase must be granted its own comprehensive permit and is recorded as a separate project.

Table 3.1 Chapter 40B Developments – Summary Statistics

Total Development Size	
Mean	58
Median	37
Mode	8
Standard Deviation	60
Range	311
Minimum	1
Maximum	312
Count	491

This inventory of projects was broken down by a number of selection criteria to find an appropriate group of cases studies. First, only projects within the Boston metropolitan area[1] were eligible for the study. Second, the projects were required to have received their comprehensive permit and have been fully developed between the mid-1980s and 2000. This time frame was necessary to satisfy the requirements of the quantitative analysis portion of the thesis.[2] Third, we only wanted to examine multi-family rental developments, not homeownership, and for projects to be mixed-income as opposed to 100 percent affordable. Fourth, we tried to selected larger projects that were very dissimilar in size, bulk, form, and density from the surrounding community. Our intentions for choosing large, rental, multi-family projects was to find 40B developments with the highest likelihood of engendering community opposition. We felt that these larger, more contentious projects would be the most likely to generate fears of property devaluation and truly test the thesis' hypothesis that opposition to multi-family development is often a result of unfounded fears of property devaluation.

After applying these selection criteria to CHAPA's 40B inventory list the number of possible projects to examine was significantly reduced. With this shortened list of developments, we then proceeded to identify the projects on GIS maps with data layers of streets, rivers, open space, zoning, and land use designations to assure that the developments were not located at the edge of the town and resided in residential neighborhoods. Additionally, we evaluated the context of potential projects using aerial photographs in order to obtain a better sense of whether projects were incorporated in residential neighborhoods or isolated from all residential neighbors. The results of this analysis were staggering in that as soon as we mapped most of the potential projects, we found the overwhelming majority of them either placed right at the edges of towns, or cut off from the community by large amounts of open space, interstate

highways, high-tension power lines, rail corridors, and industrial and manufacturing uses.

Finally, we made site visits to all the potential projects that we were left with after the previous analysis was complete. This exercise was instrumental to determining whether or not a project was really integrated with the community. We also met with planners, building inspectors, assessors, and GIS specialists in order to obtain a better sense of the neighborhood context for each of the developments. This phase of the case selection process was extremely important in determining the final list of projects for the study.

Case Study Sites

We successfully identified nine 40B projects that matched our criteria. Table 3.2 shows a compilation of the summary statistics for the projects examined in this study. These nine projects have a median size of 139 units, and fall between a range of 24 units and 525 units. The mean size of the projects in the study is 175 units, and there is a large standard deviation of 152 units: our case projects vary substantially in size. The mean, median, standard deviation and range of our sample are all higher than the values for the entire group of 40B projects described above. This is due in part because we combined two multi-phase projects, The Village and Mansfield Depot and Kimball Court Apartments, and examined them as if they were each one large development.

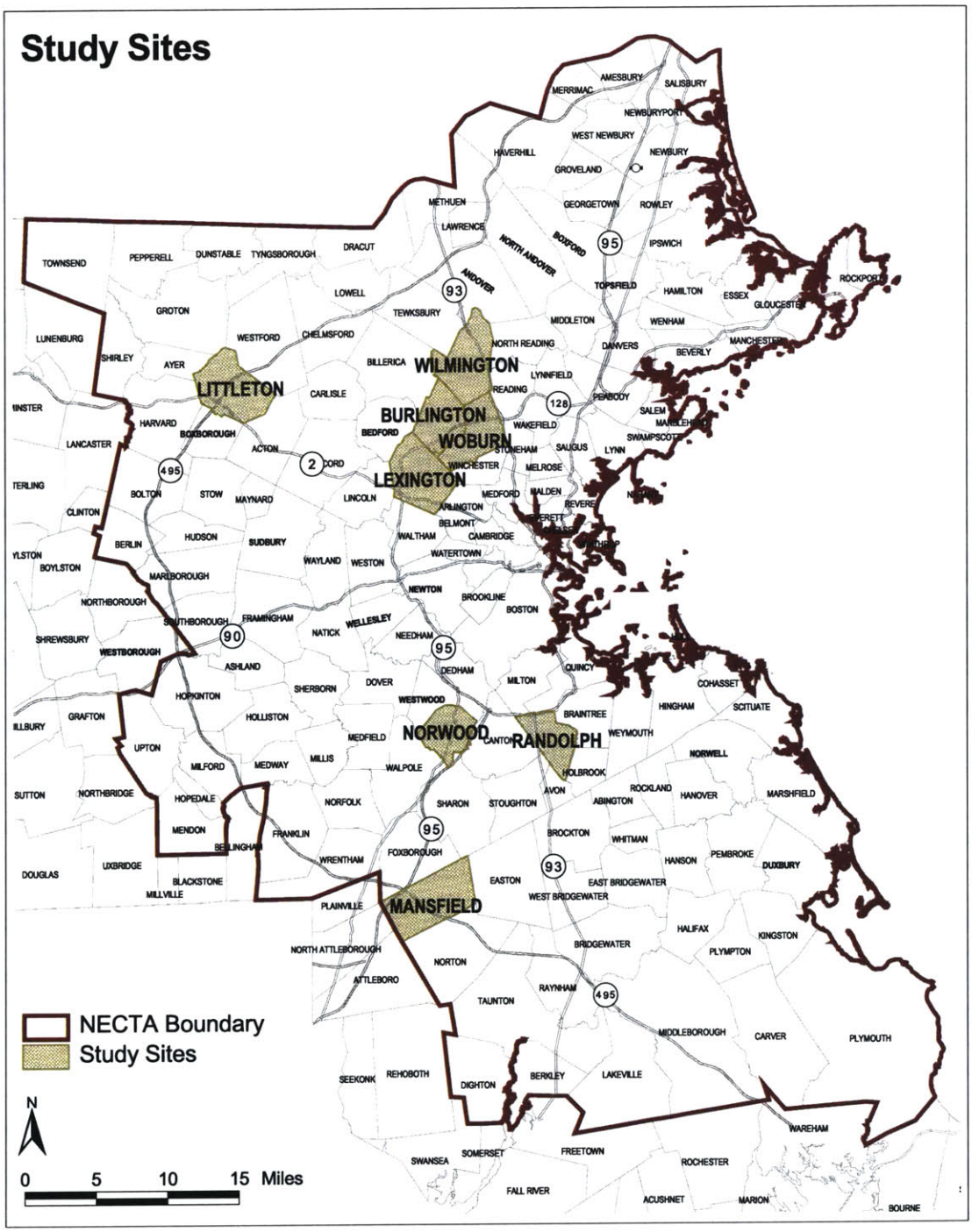
Table 3.2 Study Sites – Summary Statistics

Study Sites: Total Development Size	
Mean	175
Median	139
Mode	N/A
Standard Deviation	152
Range	501
Minimum	24
Maximum	525
Count	9

As can be seen by the following map of the study sites, the nine developments in the study are dispersed throughout the greater Boston metropolitan area. Burlington, Woburn and Lexington are clustered together along Interstate 128 northwest of Boston. Wilmington is just north of these towns along Interstate 93. Littleton is further northwest of the city at the junction of routes 2 and 495. Norwood and Randolph are south of Boston along the southern section

of 128. Finally, Mansfield is southwest of the city at the junction of Interstates 95 and 495.

Figure 3.1 Map of Study Sites



The following table details the characteristics of the individual projects including their location, developer, total project size, the number and percentage of affordable units,

density, year permitted and completed, comprehensive permit approval body, and category of opposition.

Table 3.3 Study Sites – Detailed Statistics

Location	Development	Developer	Total Units	Afford-able Units	% Afford	Density: units/ acre
Burlington	Stone Brook Farm	Brook Farm LP	203	51	25.1%	14.0
Lexington	Franklin School	The Community Builders	38	10	26.3%	11.9
Littleton	Littleton Green	Dementian Guschov	24	24	100.0%	10.0
Littleton	Pond Side at Littleton	First Littleton LP/State Street Development	90	32	35.6%	9.0
Mansfield	Mansfield Depot I & II	Keith Development	245	71	29.0%	16.6
Norwood	Olde Derby Village	Wilson Street Trust	139	35	25.2%	15.4
Randolph	Liberty Place	Liberty Place Assoc. LP	107	27	25.2%	9.2
Wilmington	Avalon Oaks	Wilmingtn Arboretum/ AvalonBay	204	41	20.1%	9.1
Woburn	Kimball Court Apartments 1, 2 & 3	Joseph Mullins	525	127	24.2%	19.3

Location	Development	Year Permitted	Year Completed	Comprehensive Permit Approval Body
Burlington	Stone Brook Farm	1987	1989	Supreme Judicial Court
Lexington	Franklin School	1986	1988	Board of Appeals
Littleton	Littleton Green	1986	1987	Board of Appeals
Littleton	Pond Side at Littleton	1987	1989	Settled in mediation with ZBA, developer, and HAC
Mansfield	Mansfield Depot I & II	1986, 1987	1988, 1989	Settled in mediation with ZBA, developer, and HAC
Norwood	Olde Derby Village	1985	1986	Superior Court
Randolph	Liberty Place	1987	1989	Board of Appeals
Wilmington	Avalon Oaks	1997	1999	Massachusetts Appeals Court
Woburn	Kimball Court Apartments 1, 2 & 3	1985, 1989, 1999	1988, 1990, 2002	Massachusetts Appeals Court

The use of our stringent selection criteria result in a short list of nine 40B developments that are large, dense, multi-family rental, and controversial. In some sense, these projects are a kind of 40B worst case scenario from the perspective of neighboring single-family home

owners. If there was ever a 40B development to cause a negative impact on surrounding property values, it would be one of these projects.

IMPACT AREA DESIGNATION

The impact area for each case study is intended to represent the neighborhood within which the 40B development is located. The single-family houses within this designation are the ones that can realistically be expected to feel the impact of a 40B development. Impact areas try to incorporate a continuous network of roads and social interaction while taking into account barriers such as geographic features and major infrastructure, zoning, and local political divisions such as school districts. A specific set of criteria were used to identify impact areas. For properties to be included in the impact area they must (1) be direct abutters or (2) be part of a contiguous road network of primary and secondary streets radiating from the 40B site; or (3) have a visual connection, and direct line-of-sight to the 40B; or (4) be adjacent to open space connections, via playing fields and dedicated walking or bike paths. These criteria define an area where all the houses feel the same severity of perception toward an imposing 40B development.

Ultimately, impact areas were determined on a case-by-case basis. It would have been unrealistic and erroneous to apply a generic test such as drawing an arbitrary distance radius around the development capturing all the homes in the area. Our decisions were informed by analyses of GIS maps, zoning, aerial photographs, road atlases, site visits. Most importantly, we held discussions with local municipal officials such as planners, building inspectors, tax assessors, GIS specialists, and town managers in order to gain their perspective of neighborhood impact by each 40B development. In almost every case these discussion reduced the size of our preliminary impact area. This study's careful and conservative treatment of the impact area limited its boundary to slightly beyond the direct abutters of each development. Figures 3.2 through 3.5 are photographs of the impact area for three of the case studies. The top left, top right, and bottom right photographs were taken from the 40B developments looking out to abutting properties. The bottom left photo was taken from an adjacent street looking into the 40B project from the surrounding neighborhood. As can be seen in the photographs, all of these homes have direct site lines to the developments and the

Figures 3.2-3.5 Impact Area Photographs

Top L - Kimball Court Apartments, Top R - Stone Brook Farms, Bottom L and R - Avalon Oaks

projects are truly embedded into single-family home neighborhoods.

Similar studies examining the relationship between affordable housing and residential property value that were conducted in different parts of the U.S. loosely define an impact area as a contiguous neighborhood fabric extending between one-quarter mile and one-half mile from the site in question.[3] This conventional thinking is not readily adaptable to our study or Boston's suburban metropolitan area. These studies examined much more densely developed neighborhood areas comprised of a continuous urban fabric. Such neighborhoods are porous. It is easier to move from street to street and block to block and to travel farther all while maintaining strong visual site lines and social connections. The porosity of well-connected urban neighborhoods allows the relative feeling of proximity to extend farther away from an impact site. In suburban Boston an impact area dissolves quickly in the vastness of large-lot zoning.

Control Areas

This study simply defines the control area as the municipality in which the 40B development is located. All but one 40B development examined in this study are located in municipalities organized as towns with a public-meeting form of government. Municipalities in Massachusetts are heterogeneous and are often small geographically. The strong allegiance

to home rule and the marked differences in the range and quality of public services provided by each municipality mean that houses are not always close substitutes among municipalities.

(Endnotes)

[1] As described in the introductory chapter, the Boston Metropolitan Area for the purposes of this study is defined as the 155 Massachusetts cities and towns in the Boston-Cambridge-Quincy New England Metropolitan City and Town Area (NECTA) Census designation.

[2] For this study we obtained every single-family home sale recorded between1982 and 2003. We wanted to have data for a few years prior to the granting of the comprehensive permit and several years after the development was complete to establish long and continuous price indexes.

[3] Lyons and Loveridge, (1993) use ¼ and ½ mile; Galster, Tatian, and Smith (1999) and Galster, Tatian, and Smith (2001) use distance intervals from 500 ft. to 2000 ft.; Lee, Culhane, and Wachter (1999) use ¼ and ½ mile.

CHAPTER 4: QUANTITATIVE METHODOLOGY

This chapter discusses the methodology employed to investigate the impact of large, dense, Chapter 40B multi-family rental developments on the value of surrounding single-family homes. The first section of the chapter provides a theoretical framework for why we chose to use the hedonic approach and how hedonic modeling works. The second section describes in detail our econometric methodology.

THEORETICAL FRAMEWORK

From an economist's perspective, the quantitative portion of this study is about amenities and disamenities and how they relate to housing markets. We seek to learn how housing consumers respond to the presence of an amenity or disamenity in a local housing market. Some opponents of chapter 40B claim that multi-family rental housing developments built under Chapter 40B constitute a neighborhood disamenity; we investigate this claim.

There are two ways to quantify the effect of a hypothesized disamenity on the sales price of houses. One strategy is to isolate distance to a disamenity. This method attempts to hold a set of factors constant while changing the distance between houses and the disamenity. The sales price at different distances can be compared to determine if distance is significant variable. We did not use this approach because it is not apparent that a pure distance variable would capture the affect of a disamenity.[1] Instead, a more effective strategy is to focus on price behavior over time. This approach builds price indexes for a control area and an impact area and then compares the two. House price indexes can be built in two ways: with repeat sales or a hedonic model. We chose not to use repeat sales because only houses that sell twice during the study period can be used in that method of analysis. The repeat sales requirement excludes all houses that only had one sales transaction; subsequently many sales observations would be lost. The hedonic modeling approach uses every house transaction, thus giving the largest possible sample size. The results of estimating a hedonic model allow us to price a

typical house over a time interval, yielding a price index.

Hedonic Modeling

So what exactly is a hedonic model and how does it work? Before we explain, let us give a brief economics primer. The price of a house is the sum of a "bundle of goods and services".[2] Practically speaking, "goods and services" are the structural attributes of a house and the neighborhood in which the house is located. Examples of structural attributes include house size, lot size, and the number of bathrooms and bedrooms. Neighborhood attributes are often considered amenities or disamenities; examples could include the school district in which the house is located, proximity to open space or a park, or closeness to heavy industry or major-transportation infrastructure. A hedonic model is a statistical tool that uses multivariate regression analysis to estimate the value of each of these attributes. The hedonic model depicts the relationship, whether positive or negative, between each attribute and the sales price. Knowing the value of each attribute makes it possible to examine how the price of a house changes by altering either the quantity of the structural attributes or differences in neighborhood attributes.

The mechanics of hedonic modeling set sales price as the dependent variable on the left side of the equation and all the attributes as independent variables on the right side of the equation. Each attribute is represented by an independent variable and the estimate of a variable's value is formally called a coefficient or parameter. Current hedonic modeling literature indicates that the best way to represent a dependent variable such as house price is as a natural logarithm.[3] This format preserves the ranked ordering[4] of house prices while allowing easier interpretation of independent variables. The coefficients for independent variables are then interpreted as the percentage change in price resulting from an additional unit of an independent variable.

We are interested in tracking how the sales price for a typical house changes with time. To accomplish this goal a hedonic model needs two stages. The first stage prices a constant quality house by estimating the value of each attribute and establishes a relationship between

value and housing attributes, including year sold. The effect of time on sales price is thus estimated by including the year a house sold into the hedonic model. In the second stage, the hedonic results are used to "price" a typical house over time. Separate hedonic models and indexes are created for both the impact area and control area.

Housing markets are information inefficient compared to markets for other securities such as a stock exchange. This means that comparing and interpreting indexes requires a little coaching. Take for example a perfectly efficient market. The knowledge about a negative event would disseminate instantly and prices would react to this new information immediately. To extend this example further, let's imagine that a housing market could be perfectly efficient and that a disamenity is introduced into a neighborhood. When it is known that a disamenity is appearing in the market, prices for homes in the same neighborhood as the disamenity will drop sharply and then continue to track the larger market.

The reality is that housing markets are not perfectly efficient; they lack perfect information. In the context of this study, some home buyers and sellers may not be aware when a Chapter 40B proposal is accepted and slated for construction nearby, or even if a 40B development already exists in the neighborhood. Then some players in the market may know that affordable housing is being developed but not really understand the nature of the project or the circumstances of the 40B process. Furthermore, even if someone has been fully informed throughout the 40B process, uncertainty could still remain about the final product and who the actual residents will be.

The various issues regarding information comprehension and dissemination mean that the assimilation of knowledge about a particular event into the local housing market will occur differentially over time. People react slowly to change. It is unlikely that homeowners are going to sell their house tomorrow if they find out today that a development has received approval. Additionally, a house is not a liquid asset, it takes time to sell. There are also high transaction costs associated with the sale of a house, which may prolong or prohibit a decision to sell. As such, it is only practical for an evaluation of price change over time to focus on the

few years closest to the event. The impact of an event is strongest relative to other external factors in the years immediately following the event.

APPLIED QUANTITATIVE METHODOLOGY

For this study we made a concerted effort to develop a comprehensive research strategy and methodology to best answer the question of whether 40B developments influence the sales price of adjacent single-family houses. Our methodology draws from the experience of other research in the field of housing economics. We look to studies[5] that use hedonic modeling to isolate time in order to ascertain the effect of affordable housing when it was first introduced. Hedonic modeling is the primary analytic tool of this study; however it is by no means the only analysis we carried out. Our rigorous and comprehensive approach strengthens the reliability of the study and increases the precision of our models. For example, as described in the previous chapter, we conducted a thorough examination of each case study and the host neighborhood of each 40B development to establish a realistic impact area. We purchased transaction data from a third party vendor to assure that we obtain an accurate and complete (or as close to complete) data set of all single-family homes sales in our case towns.

The Hedonic Model

Great effort was taken to come up with the best specifications and dimensions to compose reliable hedonic models for all the case studies. The most important component of a reliable model is for the coefficients for the independent variables to exhibit a realistic relationship with the dependent variable and have low standard errors. Thorough analyses of descriptive statistics were undertaken to construct sensible explanatory variables. We chose to represent the dependent variable (the sales price of a single-family house) as a natural logarithm because of the advantage this functional form offers for interpreting the independent variables' coefficients.

The first stage of our hedonic models defines a typical house by estimating its attributes.

The attributes are represented by independent variables; we included independent variables that are considered to be strong predictors of price. All of our models contain a combination of the following predictor variables: house size, lot size,[6] number or bedrooms, number of bathrooms, and the year the house was built. The independent variables are included in the models in one of two forms; as a continuous number or as a dummy variable. A dummy variable represents a dichotomous relationship. Either a house contains two bedrooms are not. When dummy variables are used, one of the variables must be omitted from the model. As mentioned earlier in the chapter, a dummy variable coefficient is interpreted as the percent change in price compared to the excluded variable. Let's look at an example from Woburn to interpret the coefficient of the independent dummy "bath1.5." This dummy variable represents all houses in the sample that contain one and a half bathrooms. The standardized coefficient of "bath1.5" in the control area hedonic model is 8.4%. This means that having one and half bathrooms in a house adds eight point four percent more value than only one bathroom, holding all other variables constant.

Independent variables were selected after a thorough examination of the sample's descriptive statistics. A complete table of descriptive statistics for each town can be found in Appendices 5.2 through 5.11. Additionally, definitions of all independent variables are in Appendix 5.1. House size and lot size are entered as continuous numbers; the actual square footage of the attribute is used in the model. All of the other independent variables are entered as dummy variables. Dummy variables are constructed by separating the values for each variable into bins.[7] Each bin then becomes its own dummy variable. We tried for each bin to contain similar numbers of observations. To clarify this procedure let us look again at Woburn for an example. Houses in Woburn contain as few as one bathroom or as many as five. Houses with one bathroom became dummy variable "bath1," houses with one and a half bathrooms became dummy variable "bath1.5," etc. Dummy variable "bath>=2.5" contains all houses with two and a half or more bathrooms. Each dummy variable does not contain an equal number of observations, but they are similar according to the natural distribution of the sample.

Dummy variables for bedrooms were constructed the same way as those for bathrooms. The dummy variables for year built were made a little differently. The amount of unique years in which houses were built is expansive, so bins were roughly divided into quintiles. Each bin is not equal because there are distinct patterns or cycles of building activity and bin ranges were adjusted to align with these cycles. In all cases, the dummy variable representing the smallest value was excluded from the model.

Our hedonic models also include independent dummy variables to represent time. The year in which a house sold is used to trace price movements over time. Small sample sizes in the impact areas drove the construction of the year sold independent variables. It was necessary to construct bins that contained enough observations for accurate statistical testing. We created bins by pairing years.[8] Pairing years increases the precision of estimating the effect of time. The procedure for pairing towns is relatively straightforward. All houses that sold in adjacent years were combined into one bin. For example, all houses that sold in year 1983 and 1984 were placed into bin "1983-'84." Each bin established the basis for creating a dummy variable. Care was taken to group years with similar price changes. The sales prices in 1984 should experience similar change or stability as those in 1983. Years were paired using repeat sales indexes from Case Shiller Weiss for each town. The Case Shiller Weiss indexes provide a baseline for establishing annual appreciation trends for our study.

Grouped Towns

Additional measures were taken to check the accuracy of our models and price indexes for individual towns. We grouped some towns together and built new models and indexes for the aggregated town samples. Grouping towns increases sample size, which reduces standard errors and noise (random variation) in the year sold variables: thus generating more precise indexes. We formed two groups of towns; one group is composed of Burlington, Lexington, Littleton and Woburn the other group comprises Mansfield, Norwood and Randolph.[9] We grouped towns in geographic proximity that experienced similar house price appreciation and had 40B developments introduced simultaneously. The expectation is that because these

grouped towns exhibited similar market behavior they also respond the same to shocks and externalities.

The methodology for selecting the two groups consisted of matching towns according to the previously mentioned criteria: (1) geographic proximity; (2) 40B developments were introduced at approximately the same time; and (3) annual house price appreciation trends. Determining the first two criteria is straightforward. Towns do not have to share common borders, rather just be located in reasonable proximity to one another; and they should have 40B developments introduced at approximately the same time. Annual appreciation trends were compared using Case Shiller Weiss repeat sales indexes. All grouped towns tracked identically from 1982 through 1994. Small variations occurred after 1994, but much of this difference is attributable to inflation which is not controlled for in the Case Shiller Weiss data.

Hedonic Equation

A hedonic equation was used to generate the values that support the comparative sales price indexes. Separate equations were constructed and estimated for both the control area and impact area models. To obtain a price index, the coefficient of each independent variable representing a structural attribute (interior square feet, lot size, bathroom, bedroom, year built) is multiplied by its mean and then added to the constant. The coefficients for the year sold interval are included. The matrix of values and corresponding growth rates of the equations for each town can be found in Appendices 5.2 through 5.11

Analysis Period

We talked about the diffuse nature by which information is diffused into a housing market in the first section of this chapter; housing markets are very complex and information is absorbed differentially over time. As such, it is difficult to isolate the impact any one event has on sales price. The best way to capture the influence of an event is to observe price trends before, during, and after the event and look for substantial variations from the overall trend. We create sales price indexes that begin before comprehensive permit approval and that extend well beyond the initial occupancy of the projects. The twenty year time frame of

this study (1983-2003) provides a long, continuous trend that moves through multiple market cycles.

The analysis period around each 40B development is designed to include the years in which the influence of the development was strongest. There are always many competing factors affecting sales price of single-family homes, and as time moves on from the introduction of a 40B the exogenous factors dilute and eventually replace the influence of a 40B. The length of each analysis period varies slightly, but the definition is the same for all. In general, an analysis period is three years long.[10] It begins with comprehensive permit approval and ends in the year when the project was placed in service.

Data

This study uses sales transaction data for single-family houses. We obtained records for all transactions between 1987 and 2003, and most of the transactions between 1982 and 1986. In order to use transaction data in hedonic modeling, the records must contain information about the structural attributes of the house in addition to the sales price and the date it sold. All the requisite information is not complied by one agency in a uniform format. Transaction data including address, sales price, date, buyer, seller, mortgage amount, etc. is collected by the Registries of Deeds in Massachusetts. Records containing information pertaining to property attributes are maintained by local, municipal assessors. We purchased data from a third party vender, The Warren Group, to bridge the gap between registries' and assessors' records. The Warren Group collects data from both sources and assembles it into one database.[11] For more information about The Warren Group's Real Estate Records Service, please see Appendix 4.1.

The data sets for each case were cleaned to eliminate incomplete records and statistical anomalies. In rare instances values for structural characteristics were not reported. An example of an incomplete structural characteristic would be a sales record that was missing the value for the size of the house. These incomplete records were removed. We also filtered for the anomalies of "non-arm's length" transactions and lot sizes with extreme outlying values.

All identifiable "non-arm's length" transactions were removed.[12] Lot size is the only structural valuable with extreme outliers. Extreme outliers for lot size were systematically selected and removed.[13]

(Endnotes)

[1] The literature review discusses studies that attempted to isolate distance to affordable housing. This methodology does not produce reliable results.

[2] Rosen 1974.

[3] Lusht 1997 and Malpezzi 2002.

[4] Assume all sales transactions in a sample are sorted by price, if price is then converted to a natural log the same order is preserved.

[5] Weinstein 2002.

[6] House size and lot size are measured in square feet.

[7] A bin is the same as a category. It is a way to classify and group observations in a sample that have a particular value.

[8] The designation of time intervals is an arbitrary assignment. It does not matter how time is captured (months, quarters, year etc.) as long as it is appropriate to the context of the model. Pairing years is perfectly acceptable as the scope of this study extends twenty years and the purpose is to increase observations to minimize standard error.

[9] Wilmington is not include in a group because the Avalon Oaks 40B development was introduced a decade after 40B developments in near by towns.

[10] Variation in the length of analysis periods is do to the length of the development and construction process. Small projects that were constructed quickly have shorted analysis periods, which large, complex projects tend to have longer analysis periods.

[11] The Warren Group maintains an active database of complete transactions records from 1987 through the present. They also have an inactive database of just sales records from 1982 to 1986. This inactive database does not include any structural attributes of the property. We wanted to use records from the inactive database to extend the length of our sales indexes. However, to make the records in the inactive database useful we had to merge them with the active database. The merging process identified houses that sold in both databases and attached the structural attributes of the house from the active database to the corresponding, incomplete sales record in the inactive database. The merge was accomplished using the Select Query function in Microsoft Access setting property address as the common field.

Merging the structural attributes of a house from the active database to the same house in the inactive database assumes the characteristics of the house have remained constant over time (i.e. no additions were made or the house was not replaced); or put another way the bundle of goods that produced a sale price in 1982 is the same bundle that produced the sale price for the same house in 2003. This merging process certainly caused some inconsistencies matching transaction records with structural characteristics over time, but the likely degree of error is low. The resulting merge was successful; however, the conversion rate for matching records was around 50% percent; meaning half of the houses sold in the inactive database resold in the active database. The quantity of transactions per year for the inactive database is about half the number of transactions in the active database. The two databases were combined once each sales record contained the same types of information.

[12] Sale price data were skewed to the right, meaning there was an abnormally high frequency of low sale prices. This skewness is due in part to the presence of "non-arms length" transactions. The removal of low price transactions representing "non-arms length" required subjective review; statistical testing, graphic representation and common sense were used to screen records. All transactions with a sale price equal to or less than $50,000 were selected for review. Scatter plots of price and year sold were created to identify whether previously flagged transactions were outliers for the year in

which they sold each year. The identified outliers were also compared against two standard deviations from the sample mean. The identified outliers and suspected "non-arm's length" transactions were compared to other structural attributes of the property and assessor information the see if the price seemed appropriate. We considered the buyer and seller, mortgage amount, year built, interior square feet and lot size. The sale of many low priced homes were transactions between family members or had mortgages considerably larger than the sale price. Examples of these two scenarios would be a house that sold for $30,000 but had a mortgage of $225,000; or a larger than average sized house on three quarter acre lot that sells for $25,000 between family members. In one instance, the same sold for $15,000 five times on the same day to different individuals all with the same last name. Seeming abnormally low sales transactions and outliers the failed the "non-arm's length" subjective test were removed.

[13] The average lot size in many of the towns is around half acre (20,000 square feet), yet all towns had some transactions with lot sizes of several acres (200,000 + square feet and in one instance 2.5 million square feet or 57 acres). All transactions with lot sizes over three standard deviations were removed from the impact areas. The sample sizes in impact areas were too small to compensate for extreme values and allow the hedonic models to reliably estimate variable coefficients.

CHAPTER 5: QUANTITATIVE ANALYSIS

The empirical portion of this study employs rigorous statistical methodologies to evaluate the impact nine, multi-family 40B developments have on the sales price of adjacent single-family homes. The review of each case study includes a description of the impact area, and a discussion and interpretation of house-price indexes followed by an explanation of hedonic models. A comprehensive project profile and development background is provided for each case study in chapter 7.

We begin with a thorough examination of the Kimball Court Apartments 40B development in Woburn. The assessment of subsequent case studies will be brief; highlighting major trends and explaining any substantive differences from the Woburn case. We are starting with Woburn because Kimball Court is the largest development in our study and it is shockingly different from, and out of scale with, the surrounding neighborhood. This development is the strongest candidate for causing neighborhood devaluation. Furthermore, the hedonic models for the control and impact areas do a good job estimating the coefficients, so it serves as a good example case. The order in which the remaining case studies are reviewed corresponds to how towns are grouped for the aggregate analysis. Results for individual towns will be given first, followed by the results for the grouped towns. The grouped analyses are offered to confirm our conclusions. The Town of Wilmington is not included in a grouped analysis; its results will be presented independently.

WOBURN

The City of Woburn has seen three phases of the Kimball Court multi-family housing development. All phases were permitted using chapter 40B, and each phase has a separate analysis period. The analysis period for each phase begins with the issuance of the comprehensive permit and concludes in the year each phase was placed-in-service. The three analysis periods are not all the same length; these differences are related to the construction and development timeline of each project phase. The impact area and the control area is the

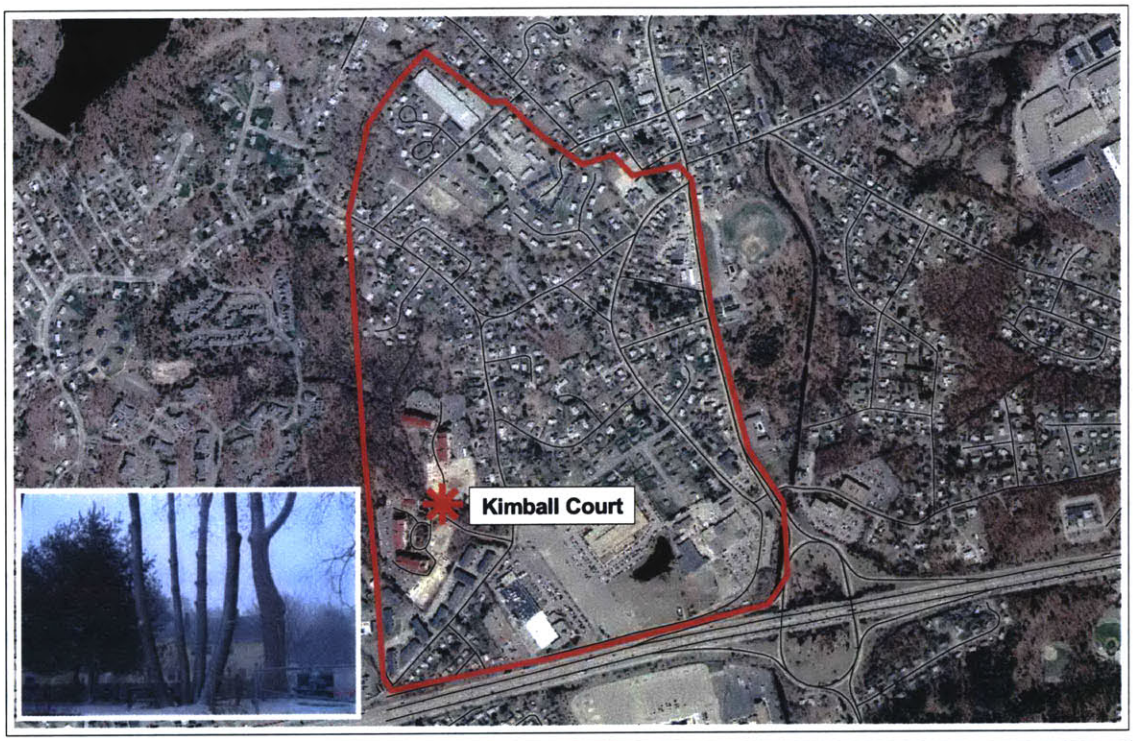
same for all phases.

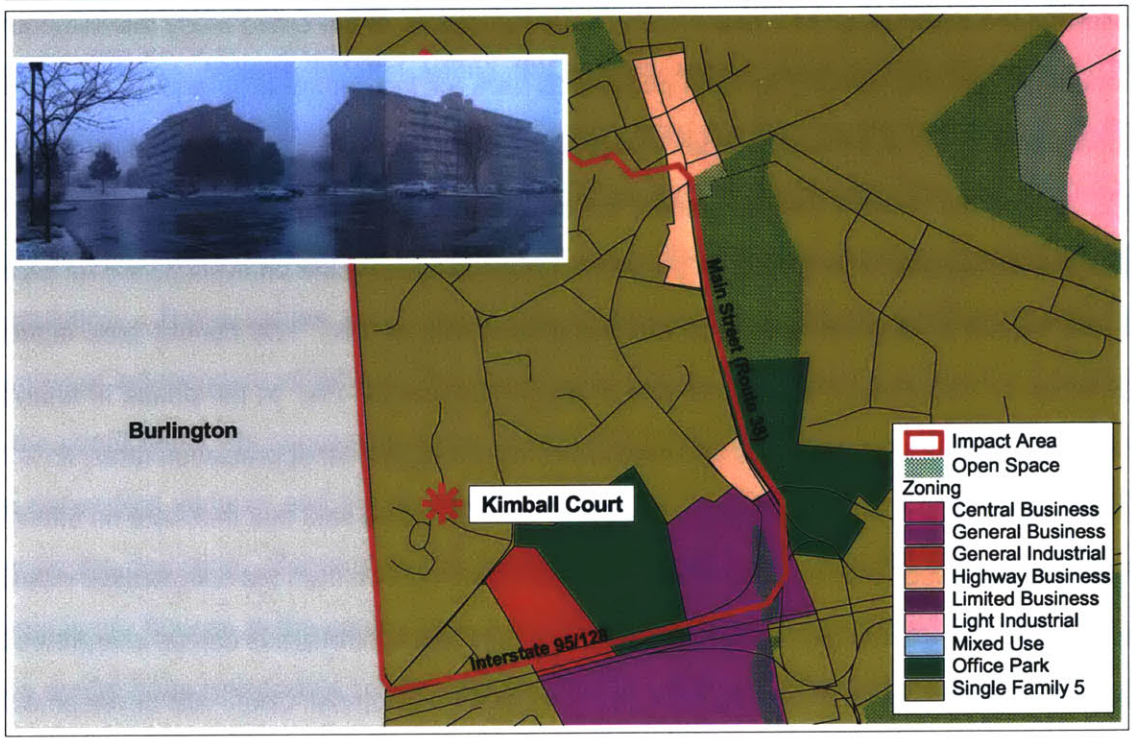
Impact Area

Kimball Court is located on the western edge of town adjacent to the Burlington border. We are only considering the single-family homes in Woburn as part of the impact area. The boundary is rectangular shaped with three definitive edges formed by Burlington to the west, Route 128 to the south and Main Street on the east. The northern edge is marked where Merrimac Street intersects Main Street and winds west through residential streets to where Pearl Street crosses into Burlington. The Kimball Court impact area is one of the largest in the study in part because the development is so dominating that its presence radiates deeply into the residential neighborhood. The topography of the impact area slopes from the north and east toward Kimball Court. The grade affords houses close to Main Street and farther north clear site lines of the seven-story, monolithic buildings.

Figures 5.1 and 5.2 are an aerial photograph and zoning map of the impact area and surrounding neighborhood. The photograph clearly depicts the relational mismatch between the form and scale of Kimball Court and neighboring single-family homes. Most of the open space adjacent to the development provides a buffer only to Burlington; Woburn residents face a hard edge with little or no transition (see figure 5.4). The zoning map reinforces the point that Kimball Court is an island amid a single-family district. There are other non-residential uses to the south facing I-95/Route 128, but Kimball Court penetrates into the neighborhood opposed to minding the periphery.

Figures 5.1-5.4





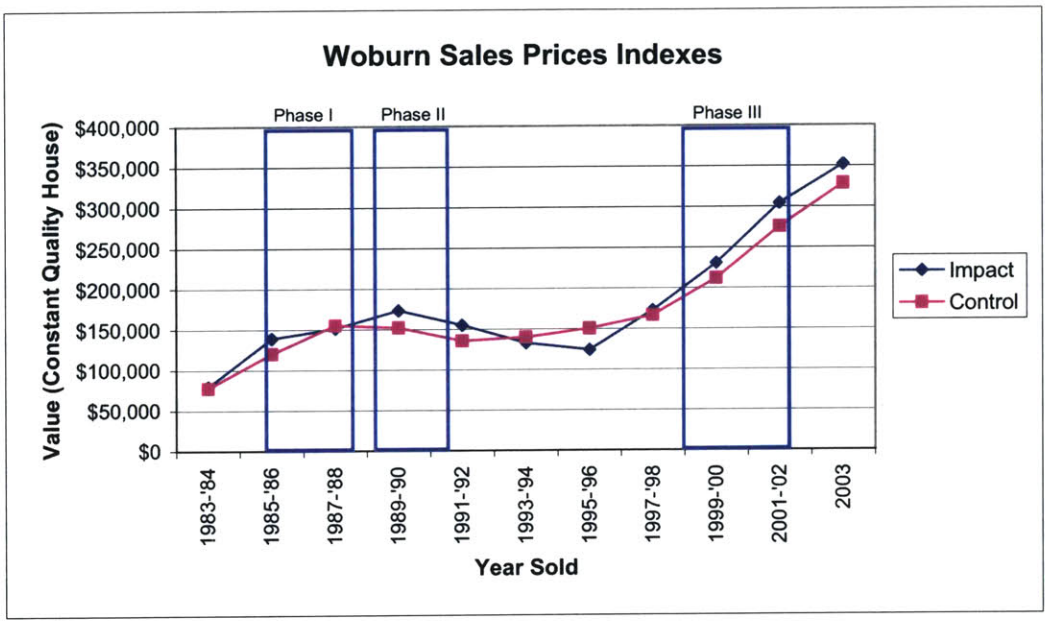
Source: MassGIS Vector and Image Data

Sales Price Indexes

Chart 5.1 shows the house price indexes for the control and impact areas. Both indexes track house price movements over time that is consistent with the Boston area's market experience. House prices rose strongly through the mid-1980's peaking in late 1988 and 1989. In the first half of the 1990's prices witnessed stagnation and even some depreciation. By 1996 the market had turned a corner and house prices rebounded sharply. The control area followed the experience of the larger Boston market somewhat more closely. House prices in the impact area had greater amplitude on the margins, posting stronger growth on the up side of the cycle and deeper depreciation on the down side. In sum, both indexes followed very similar price paths.

In the years after the introduction of each Kimball Court phase the impact area and control area experienced similar appreciation in sale price for single family homes. In fact the impact area saw greater appreciation than the control area in each year interval immediately following the introduction of a new phase. Over the course of the entire study the compound annual growth rate (CAGR) for sale prices was 14% for the control area and 14.5% for the impact area. A table of the price index values and summary statistics can be found in Appendix 5.2. During the phase I analysis period, the control area saw a 26% CAGR, slightly greater than the impact area's 24% rate. In the year interval comprising the analysis period for phase II, the impact area grew at a more modest annual rate of 7%. The control area actually experienced deprecation during this time at an annual rate of -1%. In the phase III analysis period the control area rebounds and both areas log strong annual appreciation rates: 21% for the impact area and 18% for the control area. Overall it can be said that there are no effective differences between the two price trends. The conclusion drawn from the comparative indexes is that sale prices for single-family homes in the impact and control areas can be interpreted as trending identically during the three analysis periods for the Kimball Court 40B development.

Chart 5.1



Hedonic Model: Control Area

The control area sample consists of all single-family homes in the City of Woburn excluding those houses located within the impact area. This model contains 4,762 observations. The accuracy of the model is witnessed by the low standard errors of the coefficients for the year sold dummy variables. When trying to understand this hedonic model (and other models in this study) it is important not to fixate on the Adjusted R squared and T statistics. These values are driven in part by the magnitude of the coefficients and the number of independent variables. This model does the best job possible estimating the value of the coefficients. Its success is better determined by the relationship of the coefficients to the dependent variable and the size of the standard error; the lower the standard error the greater the precision. Remember, the dependent variable is the recorded sales price for all single-family houses in the control area sample. All the independent variables in the control area model have reasonable coefficients that interact in an understandable manner with the dependent variable. The output of the control area hedonic model is shown in Table 5.1. Definitions of the independent variables can be found in Appendix 5.1.

Table 5.1

Control					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.195	-	0.031	364.970	0.000
intersf	0.000	0.01%	0.000	6.560	0.000
lotsize	0.000	0.00%	0.000	10.680	0.000
bath1.5	0.081	8.41%	0.013	6.080	0.000
bath2	0.061	6.32%	0.014	4.500	0.000
bath>=2.5	0.160	17.35%	0.019	8.270	0.000
bed3	0.089	9.27%	0.014	6.170	0.000
bed>=4	0.095	9.96%	0.018	5.280	0.000
yrblt1920-'59	0.113	11.99%	0.013	8.520	0.000
yrblt1960-'79	0.199	22.01%	0.016	12.090	0.000
yrblt1980-'89	0.212	23.57%	0.020	10.670	0.000
yrblt1990-'03	0.260	29.73%	0.021	12.580	0.000
yrsold1983-'84	-0.434	-35.21%	0.031	-14.060	0.000
yrsold1987-'88	0.258	29.38%	0.026	9.800	0.000
yrsold1989-'90	0.238	26.88%	0.027	8.660	0.000
yrsold1991-'92	0.124	13.16%	0.026	4.720	0.000
yrsold1993-'94	0.155	16.72%	0.025	6.080	0.000
yrsold1995-'96	0.228	25.55%	0.025	9.040	0.000
yrsold1997-'98	0.329	38.90%	0.025	13.160	0.000
yrsold1999-'00	0.570	76.75%	0.025	22.790	0.000
yrsold2001-'02	0.831	129.65%	0.026	32.400	0.000
yrsold2003	1.008	173.92%	0.028	36.020	0.000
N	4762	Adjusted R-Squared	0.5553	Std. Error of the Estimate	0.32387

Omitted variables: bath1, bed<=2, yrblt<=1919, yrsold1985-'86

The first variable in Table 5.1, "constant", is not actually a variable at all. Technically speaking, the constant is the y intercept; it is the point where the fitted regression line crosses the y axis. What is important to know about the constant is that the coefficient is the base estimate for house value. The constant for this model is 11.195, which converts to approximately $73,000.[1] The coefficient of each independent variable is interpreted as the percent change in price from an additional unit of an independent variable. In other words, an independent variable's coefficient tells us how much value an attribute will add to, or detracts from, the value of the house (the constant). To better understand this, let's use an example.

The true first independent variables included in the model are house size "intersf" and lot size "lotsize". House size is usually the strongest predictor of sales price. The standardized[2]

"intersf" coefficient reveals that each additional square foot increases sales price by about .01%. The coefficient may seem small, but when multiplied by many square feet the effect is quite large. The standardized coefficient for lot size is also very small, but again this affect is per square foot. These coefficients are not used to price an entire house, rather to see how a change on the margin affects price. The hedonic model estimates the "intersf" and "lotsize" coefficients based on the house and lot sizes in the sample. The coefficients describe how an addition to, or subtraction from, this average size changes the value of a house. We are going to use the "intersf" independent variable to run through a numeric example. The average house in the control area is 1,471 sf. Suppose we want to price a house that is 500 sf larger (roughly one standard deviation) from the typical house: first, multiple 500 sf by the "intersf" coefficient to get 4.3%; then, multiple the constant ($73,000, the base home value) by 4.3% to get $3,161. The additional 500 sf of interior space add $3,161 of value.

The rest of the independent variables are entered into the model as dummies. Another strong indicator of price is the number of bathrooms in a house. This characteristic is divided into four categories (bins), one bathroom or less "bath<=1", one and a half bathrooms "bath1.5", two bathrooms "bath2", and two and a half or more bathrooms "bath>=2.5". "Bath1" is omitted from the model, so the coefficients for the remaining bathroom variables are in comparison to a house with one bathroom. The coefficients for the "bath1.5" and "bath2" behave fairly normally, increasing price by 8.41% and 6.32% respectively compared to a house with only one bathroom. The 17.35% standardized coefficient for "bath>=2.5" is not an uncommon estimation in this type of hedonic modeling. The exceptionally large coefficient indicates that "bath>=2.5" is correlated with other "quality" features.[3] This dummy variable is acting as a proxy for exogenous factors not controlled for in the model.

The procedure for estimating the value of a dummy variable is similar to the procedure we used to find the value of additional square feet. There are however subtle, but noteworthy, differences in the process and interpretation. Remember that when dummy variables are used, one of the variables must be omitted from the model. As a result, a dummy variable

coefficient is interpreted as the percent change in price compared to the excluded variable. Using "bath1.5" we will give another numeric example. The standardized coefficient for "bath1.5" is 8.41%; multiple this by the constant to get $6,137. The presence of one and half bathrooms adds $6,137 more value than if a house had only one bathroom.

Independent dummy variables for bedrooms are included next. Bedrooms are split into three categories, with houses containing two or less bedrooms used as the base case. "Bed3" and "bed>=4" have very similar positive coefficients: 9.3% and 10% respectively. There is caveat for interpreting bedroom dummy variables. One would expect the presence of more bedrooms to exhibit a greater-positive influence on sales price. However, remember that hedonic models hold the size of the house constant. So an increase in bedrooms means a decrease in other living space like the kitchen or family room. Often-times the coefficient of the dummy variable with the most bedrooms is lower than (and sometimes negative) the coefficient of the dummy variable representing fewer bedrooms. In this case, the bedroom dummy variables have nearly identical coefficients, indicating that there is a preferred tradeoff for bedrooms versus living space.

The age of the housing stock is also considered in this model. The influence of age is captured by the year in which a house was built. The year built variable is divided into quintiles that are adjusted to reflect building cycles. The dummy variable "yrblt1919" representing the oldest homes is omitted from the model. In general we expect newer houses to have a stronger positive influence on sales price. This trend holds true, each successively newer category of houses adds more value to the sales price than the previous. Deviations to this trend can occur. Year built is often a proxy for house style. Often it is the case that specific house styles are unique to different time periods. Sometimes a style of house built several decades (or even one hundred years ago) is more desirable than the types of house built recently.

The final set of independent dummy variables included in the model is for year sold. These coefficients are used to trace price movements over time. The year sold interval 1985-'86 was omitted from the regression and serves as the model's base year. The coefficients of

this set of independent variables are less intuitive to interpret when the omitted variable is not the first one in the series. Assume the coefficient for "yrsold1985-'86" is 0; it does not influence the dependent variable. The coefficients of the remaining year sold dummies are relative to this base year coefficient of 0%. The coefficient of "yrsold1983-'84", the previous year sold interval, is -35.21%. This means that houses in year interval 1983-'84 sold for 35% less than houses in 1985-'86. The coefficient of "yrsold1987-'88" is 29.38%, so houses in this year interval sold for almost 30% more than houses in the omitted base year interval.

Hedonic Model: Impact Area

The Impact area contains 157 observations. The output of the impact area model is give below in Table5.2. The standardized coefficient of "bath1.5" is 14.4%, a substantially larger estimation than the other bathroom dummy variables. This indicates that the proxy effect for "bath>=2.5" does not exist. There are fewer variables for structural attributes because houses in the impact area are more homogeneous than houses in the control area, and the independent variables in the model for structural attributes do good job describing the typical house.

Table 5.2

Impact					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.344	-	0.117	97.270	0.000
intersf	0.000	0.01%	0.000	2.200	0.029
lotsize	0.000	0.00%	0.000	2.530	0.012
bath1.5	0.135	14.43%	0.052	2.570	0.011
bath2	0.003	0.25%	0.053	0.050	0.962
bath>=2.5	0.057	5.89%	0.080	0.720	0.474
bed>=4	0.084	8.75%	0.046	1.810	0.072
yrblt1900-'46	0.016	1.62%	0.061	0.260	0.793
yrblt1947-'54	0.165	17.95%	0.062	2.640	0.009
yrblt1955-'90	0.146	15.69%	0.059	2.470	0.015
yrblt1991-'03	0.382	46.49%	0.069	5.550	0.000
yrsold1983-'84	-0.558	-42.74%	0.133	-4.190	0.000
yrsold1987-'88	0.084	8.76%	0.101	0.830	0.408
yrsold1989-'90	0.221	24.76%	0.097	2.270	0.025
yrsold1991-'92	0.109	11.55%	0.113	0.970	0.335
yrsold1993-'94	-0.044	-4.29%	0.103	-0.430	0.671
yrsold1995-'96	-0.111	-10.54%	0.097	-1.150	0.252
yrsold1997-'98	0.218	24.34%	0.087	2.510	0.013
yrsold1999-'00	0.507	66.05%	0.092	5.530	0.000
yrsold2001-'02	0.784	119.08%	0.096	8.130	0.000
yrsold2003	0.930	153.44%	0.106	8.770	0.000
N	157	Adjusted R-Squared	0.742	Std. Error of the Estimate	0.21462

Omitted variables: bath1, bed<=3, yrblt<=1899, yrsold1985-'86

Housing Profile

Table 5.3 gives some descriptive statistics for the housing stock in both the control area and impact area. The mean and standard deviations for each variable in the model are provided. The mean of a dummy variable is its percentage of the whole variable set. Looking at bathrooms, the mean for "bath1" is .38; 38% of the houses in the control sample have one bathroom. The mean values of the independent variables are used in calculating the price indexes. The hedonic equation is discussed in chapter 4. On average houses in the impact area are slightly more expensive, larger and situated on bigger lots than houses in the control area. Additional description statistics about each sample are provided in Appendix 5.2.

Table 5.3

Descriptive Statistics				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*188,250*	*86,583*	*195,064*	*80,874*
Intersf	*1,471*	*486*	*1,561*	*433*
Lotsize	*11,774*	*5,889*	*12,138*	*6,592*
Bathrooms	*1.61*	*0.61*	*1.61*	*0.62*
1	**0.38**	**0.48**	**0.37**	**0.48**
1.5	0.23	0.42	0.25	0.43
2	0.24	0.43	0.25	0.44
>=2.5	0.16	0.36	0.13	0.33
Bedrooms	*3.18*	*0.78*	*3.36*	*0.78*
<=2	**0.15**	**0.35**	-	-
3	0.58	0.49	-	-
<=3	-	-	**0.68**	**0.47**
>=4	0.28	0.45	0.32	0.47
Year Built	*1946*	*40*	*1935*	*54*
<=1919	**0.20**	**0.40**	-	-
1920-59	0.43	0.49	-	-
1960-79	0.18	0.38	-	-
1980-89	0.09	0.29	-	-
1990-03	0.10	0.30	-	-
<=1899	-	-	**0.19**	**0.39**
1990-46	-	-	0.19	0.39
1947-54	-	-	0.21	0.41
1955-90	-	-	0.20	0.40
1991-03	-	-	0.20	0.40

Bold Independent variables are base case (omitted)

BURLINGTON

Stone Brooke Farms 40B development is a large, dense project. The analysis period begins in 1987 with the issuance of a comprehensive permit and concludes in 1989, the year in which the development was fully occupied.

Impact Area

The Stone Brooke Farms impact area is basically a triangular shaped polygon bounded by three major roads; Bedford Street to the North, Center Street to the East and Cambridge Street to the West. Properties located within these three major roads and Birchcrest Street to the South are considered direct abutters. The southern edge is loosely defined by Rita Avenue, Ganley Drive and Heather Drive. These three roads are considered to be secondary-tier roads in the impact area's contiguous road network. Traverse Lane and a few other properties to the

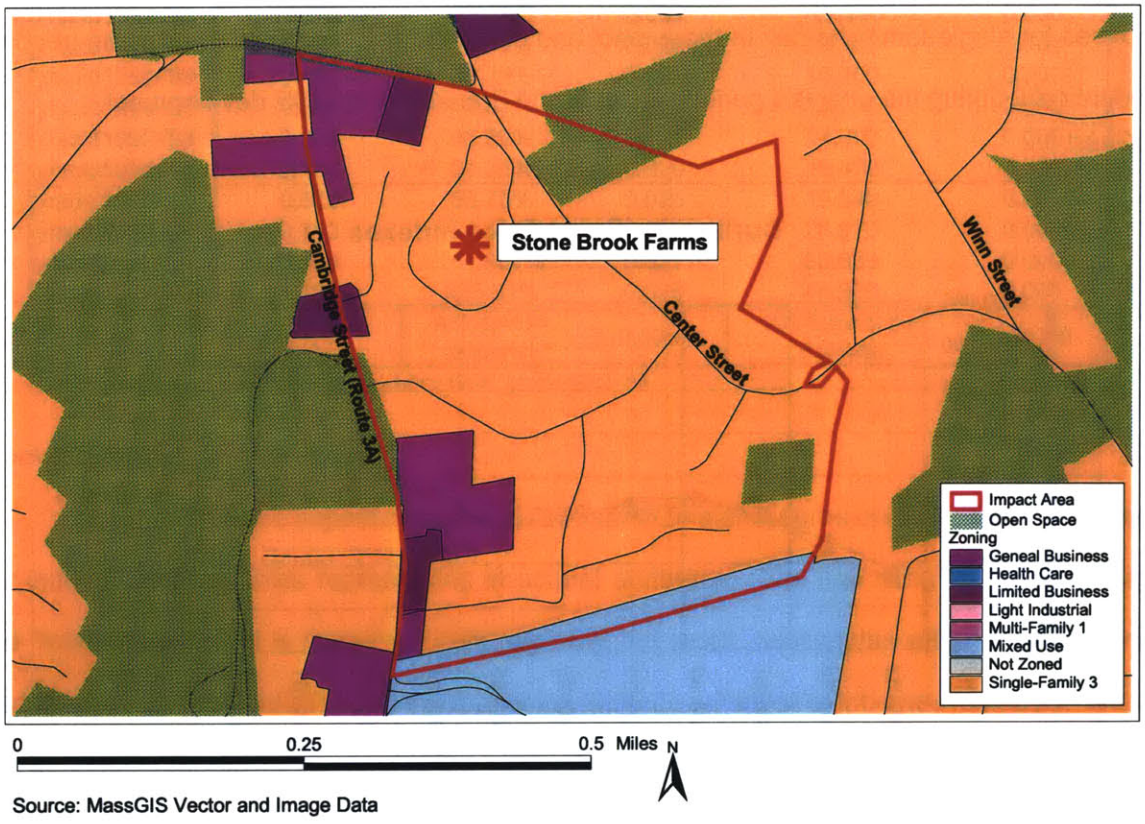
south are included in the impact area even though they on the opposite side of Center Street. They are included due to visual impact and because they are directly across from the main entrance to Stone Brooke Farms. The boundary of the impact area was focused with the input from Burlington's Planning Director.

It is seen from figures 5.5 and 5.6 that Stone Brooke Farms is clearly embedded in a single-family neighborhood. The development sits below the grade of Center Street but is uphill of residents to the south and west. Figures 5.7 and 5.8 shows the scale of the buildings and how different the development is from the close neighbors.

Figure 5.5

Figure 5.7-5.8

Figure 5.6



Source: MassGIS Vector and Image Data

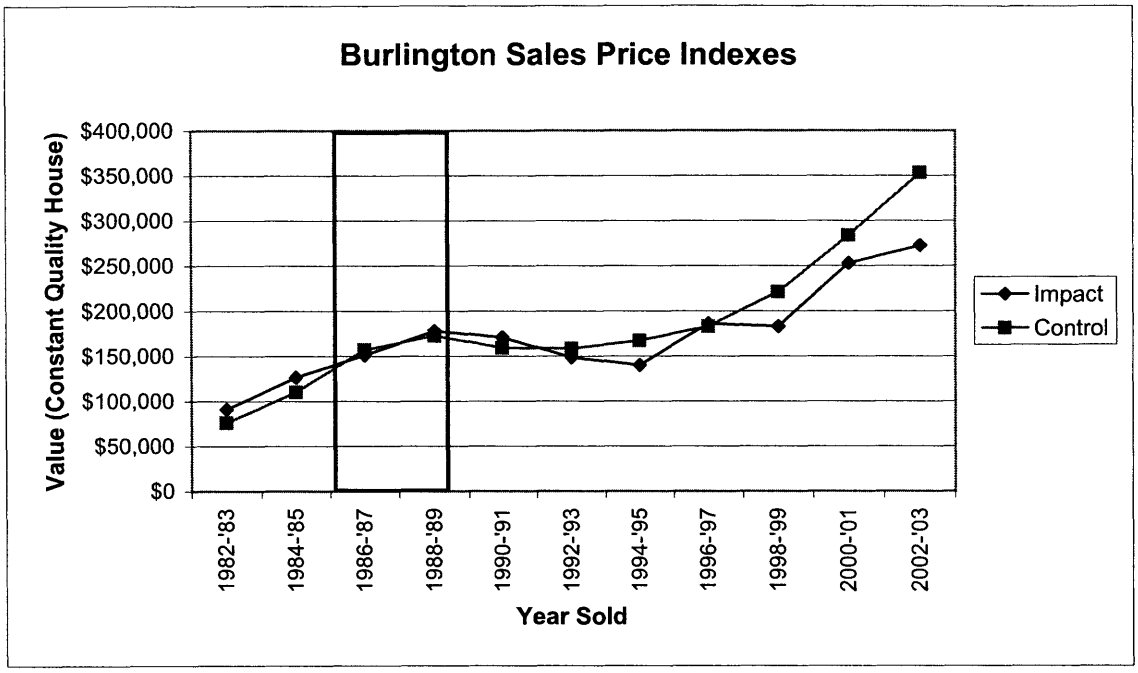
Sales Price Indexes

In chart 5.2 the sales price indexes for the control area and impact area track very closely in the analysis period and for most other years in this study. The control area matches the Boston area market experience very well, with smooth transitions between cycles. The impact area index experiences fluctuations beginning in 1994. This unsteadiness is most likely due to randomness associated with higher standard errors of the year sold coefficients. Despite the fluctuations, a persistent upward trend consistent with the control area index is evident.

Over the duration of the study, the impact area had a Compound Annual Growth Rate of 10.5% while the control area's CAGR was 15%. During the analysis period the control area also witnessed a higher growth rate of 16% to the impact area's 12%. The rate of growth during the analysis period relative to the annual growth for the entire study is greater in the impact area. More information about the indexes values and growth rate is available in

Appendix 5.2. The conclusion for Burlington's price indexes is the same as in Woburn: sale prices for single-family homes in the impact and control areas can be interpreted as trending identically during the analysis period for the Stone Brooke Farms 40B development.

Chart 5.2



Hedonic Model: Control Area

The output of this model is seen below in Table5.4. The coefficients of all the independent variables behave well.

Table 5.4

Control					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.054	-	0.032	343.530	0.000
intersf	0.000	0.01%	0.000	9.790	0.000
lotsize	0.000	0.00%	0.000	7.290	0.000
bath1.5	0.082	8.59%	0.014	5.720	0.000
bath2	0.057	5.84%	0.015	3.710	0.000
bath>=2.5	0.100	10.49%	0.018	5.410	0.000
bed3	0.047	4.83%	0.019	2.530	0.012
bed>=4	0.084	8.73%	0.021	3.940	0.000
yrblt1955-'64	0.092	9.62%	0.014	6.460	0.000
yrblt1965-'78	0.192	21.12%	0.017	11.250	0.000
yrblt1979-'92	0.265	30.39%	0.020	13.320	0.000
yrblt1993-'03	0.173	18.92%	0.025	6.800	0.000

Table 5.4 continued

yrsold1982-'83	-0.352	-29.70%	0.034	-10.390	0.000
yrsold1986-'87	0.371	44.90%	0.028	13.280	0.000
yrsold1988-'89	0.465	59.19%	0.027	16.950	0.000
yrsold1990-'91	0.384	46.87%	0.028	13.750	0.000
yrsold1992-'93	0.378	45.99%	0.027	14.200	0.000
yrsold1994-'95	0.434	54.35%	0.026	16.470	0.000
yrsold1996-'97	0.523	68.75%	0.026	19.840	0.000
yrsold1998-'99	0.713	104.010%	0.026	26.970	0.000
yrsold2000-'01	0.963	161.967%	0.027	35.630	0.000
yrsold2002-'03	1.181	225.91%	0.026	44.930	0.000
N	4174	Adjusted R-Squared	0.6005	Std. Error of the Estimate	0.30739

Omitted variables: bath1, bed<=2, yrblt<=1954, yrsold1982-'84

Hedonic Model: Impact Area

The model for the impact area showed in Table5.5 returns some unexpected coefficients for independent variables representing structural attributes. The first thing to notice is that the "intersf" coefficient is negative. This negative, but small, relationship with the dependent variable causes the coefficients of the remaining attribute variables to increase markedly. They are in effect compensating, shouldering more of the responsibility for explaining house price. Even though the coefficients for the structural attribute independent variables are for the most part higher, the relationships with dependent variable make sense. A notable difference from Woburn is "yrblt1984-'03", which exhibits a slightly negative relationship relative to houses built before 1956.

Table 5.5

Impact					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	12.454	-	0.552	22.570	0.000
intersf	0.000	-0.02%	0.000	-1.220	0.227
lotsize	0.000	0.00%	0.000	-1.720	0.092
bath1.5	0.467	59.45%	0.215	2.170	0.035
bath2	0.245	27.79%	0.193	1.270	0.210
bath>=2.5	0.437	54.81%	0.256	1.700	0.095
bed>=4	0.265	30.38%	0.168	1.580	0.121
yrblt_1956-'58	0.188	20.66%	0.159	1.180	0.243
yrblt_1959-'60	0.288	33.42%	0.178	1.620	0.111
yrblt_1961-'83	0.338	40.20%	0.189	1.790	0.080
yrblt_1984-'03	-0.028	-2.77%	0.179	-0.160	0.876

Table 5.5 continued

yrsold1982-'83	-0.328	-27.97%	0.246	-1.330	0.189
yrsold1986-'87	0.178	19.43%	0.214	0.830	0.410
yrsold1988-'89	0.341	40.70%	0.210	1.630	0.110
yrsold1990-'91	0.302	35.25%	0.260	1.160	0.251
yrsold1992-'93	0.162	17.54%	0.184	0.880	0.385
yrsold1994-'95	0.102	10.69%	0.203	0.500	0.618
yrsold1996-'97	0.387	47.32%	0.227	1.710	0.094
yrsold1998-'99	0.369	44.69%	0.202	1.820	0.074
yrsold2000-'01	0.695	100.290%	0.265	2.620	0.012
yrsold2002-'03	0.769	115.655%	0.320	2.400	0.020
N	70	Adjusted R-Squared	0.2648	Std. Error of the Estimate	0.3495

Omitted variables: bath1, bed<=3, yrblt<=1955, yrsold1982-'84

Housing Profile

Houses in the control area on average sell for almost $40,000 more than houses in the impact area. The average house is also larger in the control area with an extra bedroom, but the lot sizes in each sample are almost identical. Descriptive statistics for the control area and impact area samples are detailed in Table5.6 and Appendix 5.3.

Table 5.6

Descriptive Statistics				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*209,673*	*97,805*	*169,934*	*59,773*
Intersf	*1,864*	*643*	*1,974*	*550*
Lotsize	*20,691*	*11,865*	*20,629*	*2,337*
Bathrooms	*1.78*	*0.66*	*1.91*	*0.59*
1	**0.25**	**0.43**	**0.14**	**0.35**
1.5	0.28	0.45	0.24	0.43
2	0.23	0.42	0.37	0.49
>=2.5	0.24	0.43	0.24	0.43
Bedrooms	*3.23*	*0.70*	*1.91*	*0.59*
<=2	**0.09**	**0.28**	-	-
3	0.64	0.48	-	-
<=3	-	-	**0.67**	**0.47**
>=4	0.27	0.45	0.33	0.47
Year Built	*1962*	*21*	*1967*	*15*
<=1954	**0.17**	**0.38**	-	-
1955-'64	0.45	0.50	-	-
1965-'78	0.20	0.40	-	-
1979-'92	0.12	0.32	-	-
1993-'03	0.06	0.23	-	-
<=1955	-	-	**0.20**	**0.40**
1956-'58	-	-	0.24	0.43
1959-'60	-	-	0.23	0.42
1961-'83	-	-	0.16	0.37
1984-'03	-	-	0.17	0.38

Bold Independent variables are base case (omitted)

LEXINGTON

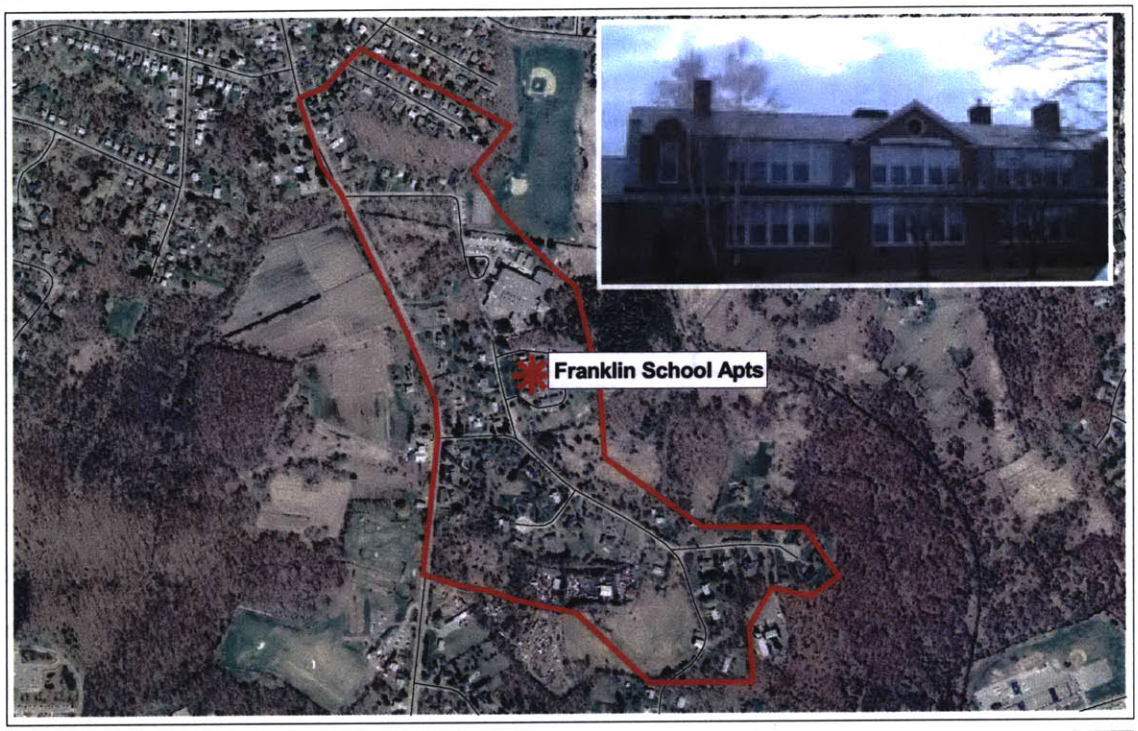
The Franklin School affordable housing development is the only case in this study that did not require a comprehensive permit. It was introduced in 1986 with the approval of a special permit. This development's placed-in-service date was 1988. The three years from the permit issuance to the occupation define the analysis period.

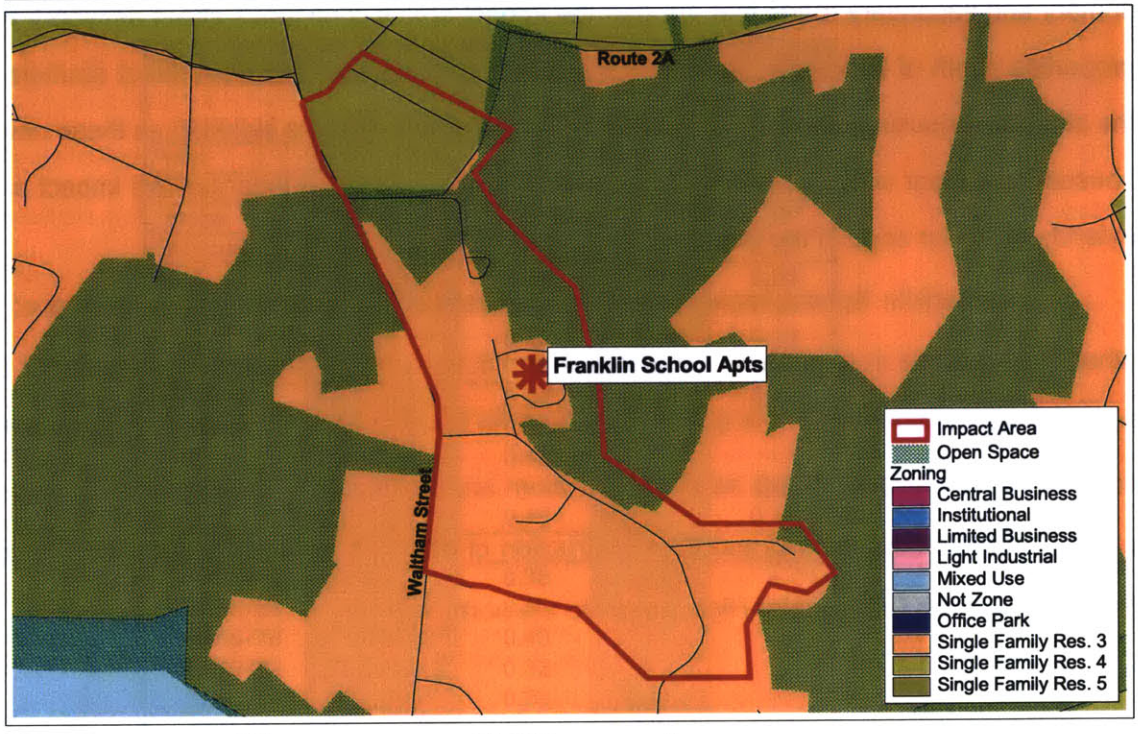
Impact Area

The Franklin School impact area is shaped much like a long, thin rectangle. The long sides are formed by Stedman Road and Allen Street on the east and Waltham Street on the west. The Franklin School development is located on the east side of Stedman Road close to the intersection of Allen Street. These two roads are the primary connectors throughout the impact area. The northern portion of the impact area comprises the neighborhood defined by the Hilltop Avenue cul-de-sac and Broadside Avenue. This neighborhood is connected to primary and secondary roads that are part the impact area's contiguous street network. The properties south of Brookside Avenue to the Pitcairn Place cul-de-sac are direct abutters of the affordable housing development. The whole of Clematis Road is included as these newer houses have clear views of the Franklin School. The southern boundary of the impact area extends to the far edge of the large field.

The Franklin School impact area captured relatively few observations compared to other impact areas in this study. Figures 5.9 and 5.10 illustrate the very low-density of the surrounding neighborhood. The size and scale of the Franklin School are not drastically out of context with the neighborhood, as seen in Woburn and Burlington. The project converted an existing neighborhood school and the construction of barracks style buildings. The Franklin School also abuts Clark Junior High School to the north.

Figures 5.9-5.11



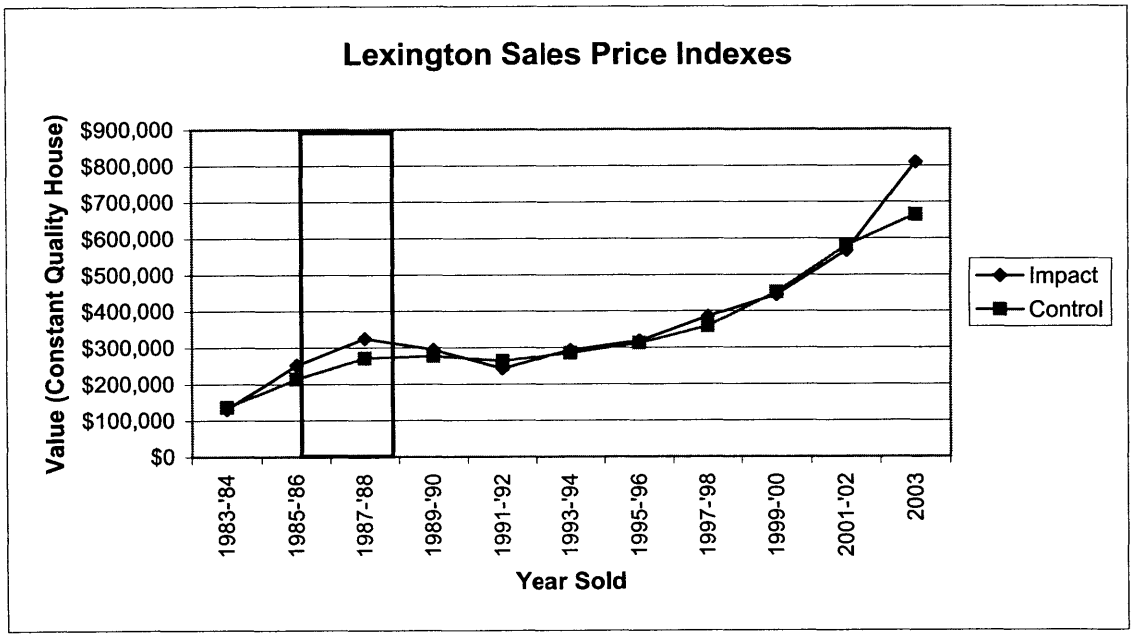


Source: MassGIS Vector and Image Data

Sales Price Indexes

Chart 5.3 reveals how closely the indexes for the control area and impact area track for the duration of this study. In the years following the introduction of the Franklin School development, houses in the impact area sold for more than houses in the control area. Throughout the study and analysis period the impact area experienced greater compound annual growth rates than the control area. For the study period as whole, the annual growth rate was 18% for the impact area and 15.5% for the control. During the analysis period the rates were 35.3% and 25.8% respectively. The differences between the two price trends are extremely small. In conclusion, no effective differences in sales price were caused by the introduction of the Franklin School affordable housing development.

Chart 5.3



Hedonic Model: Control Area

The independent variables in this model generally conform to the expected relationship with the dependent variable. Dummy variables "bath2.5" and "bath>=3" both appear to proxy for exogenous quality features not included in the model. The coefficients of the set of dummy variables for year built are different from what we have seen so far. Only the houses built between 1962 and 1988 positively influence sales price more than house built before 1929,

the three remaining dummy variable maintain a negative relationship with sales price. Table 5.7 provides the output of the control area hedonic model.

Hedonic Model: Impact Area

Table 5.7

Control					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.788	-	0.022	525.910	0.000
intersf	0.000	0.02%	0.000	24.560	0.000
lotsize	0.000	0.00%	0.000	13.450	0.000
bath<=1.5	0.154	16.67%	0.014	10.790	0.000
bath2	0.146	15.71%	0.015	9.520	0.000
bath2.5	0.278	31.99%	0.016	17.680	0.000
bath>=3	0.320	37.76%	0.019	17.130	0.000
bed3	0.058	5.95%	0.015	3.810	0.000
bed4	0.082	8.59%	0.018	4.660	0.000
bed>=5	0.141	15.12%	0.023	6.160	0.000
yrblt1930-'49	-0.012	-1.15%	0.014	-0.850	0.395
yrblt1950-'61	-0.012	-1.20%	0.012	-1.000	0.317
yrblt1962-'88	0.087	9.06%	0.014	6.210	0.000
yrblt1989-'03	-0.164	-15.14%	0.018	-9.140	0.000
yrsold1983-'84	-0.689	-49.78%	0.023	-29.530	0.000
yrsold1985-'86	-0.237	-21.13%	0.023	-10.400	0.000
yrsold1989-'90	0.022	2.23%	0.019	1.170	0.243
yrsold1991-'92	-0.027	-2.70%	0.018	-1.520	0.129
yrsold1993-'94	0.049	5.00%	0.018	2.780	0.006
yrsold1995-'96	0.141	15.11%	0.018	8.030	0.000
yrsold1997-'98	0.280	32.25%	0.017	16.090	0.000
yrsold1999-'00	0.511	66.69%	0.018	28.800	0.000
yrsold2001-'02	0.761	113.98%	0.018	42.500	0.000
yrsold2003	0.896	145.05%	0.022	40.870	0.000
N	6257	Adjusted R-Squared	0.6619	Std. Error of the Estimate	0.31996

Omitted variables: bath1, bed<=2, yrblt<=1929, yrsold1987-'88

The impact area model contains some independent variables with coefficients that are also different. The dummy variable "bath2.5" seems to exhibit the proxy effect, yet "bath>=3" does not. The entire set of bedroom dummy variables negatively effect sales price compared to houses with two or fewer bedrooms. The set of year built dummy variables all have coefficients with more normal relationships, like those in the Woburn example. The majority of coefficients of the year sold dummy variables are negative. These strong negative relationships are balanced by a high constant.

Table 5.8

Impact					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	12.149	-	0.165	73.570	0.000
intersf	0.000	0.01%	0.000	1.830	0.076
lotsize	0.000	0.00%	0.000	1.800	0.080
bath<=1.5	0.112	11.89%	0.167	0.670	0.505
bath2	0.083	8.68%	0.176	0.470	0.640
bath2.5	0.297	34.61%	0.172	1.730	0.093
bath>=3	0.058	6.00%	0.249	0.230	0.816
bed3	-0.161	-14.91%	0.170	-0.950	0.349
bed4	-0.001	-0.12%	0.209	-0.010	0.995
bed>=5	-0.233	-20.80%	0.248	-0.940	0.353
yrblt1930-'49	0.131	14.02%	0.110	1.200	0.239
yrblt1950-'61	0.191	21.07%	0.140	1.370	0.180
yrblt1962-'88	0.240	27.10%	0.131	1.830	0.075
yrblt1989-'03	0.339	40.39%	0.163	2.090	0.044
yrsold1983-'84	-0.907	-59.62%	0.179	-5.050	0.000
yrsold1985-'86	-0.254	-22.43%	0.174	-1.460	0.153
yrsold1989-'90	-0.097	-9.20%	0.133	-0.720	0.474
yrsold1991-'92	-0.289	-25.10%	0.195	-1.480	0.147
yrsold1993-'94	-0.100	-9.56%	0.170	-0.590	0.559
yrsold1995-'96	-0.019	-1.88%	0.144	-0.130	0.896
yrsold1997-'98	0.173	18.94%	0.158	1.100	0.280
yrsold1999-'00	0.316	37.15%	0.126	2.510	0.016
yrsold2001-'02	0.558	74.66%	0.148	3.760	0.001
yrsold2003	0.914	149.48%	0.131	6.980	0.000
N	61	Adjusted R-Squared	0.7924	Std. Error of the Estimate	0.23316

Omitted variables: bath1, bed<=2, yrblt<=1929, yrsold1987-'88

Housing Profile

Houses in the impact area, on average, are larger, located on bigger lots and sell for more. Houses in both the Lexington samples are the largest and most expensive of this study. Table 5.9 and Appendix 5.4 provide descriptive statistics about the two samples.

Table 5.9

Descriptive Statistics				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*383,807*	*235,005*	*393,076*	*216,959*
Intersf	*2,012*	*905*	*2,139*	*1,021*
Lotsize	*19,499*	*17,007*	*27,408*	*47,719*
Bathrooms	*2.15*	*0.84*	*2.06*	*0.75*
1	**0.14**	**0.35**	**0.13**	**0.33**
1.5	0.22	0.41	0.20	0.41
2	0.18	0.38	0.30	0.46
2.5	0.30	0.46	0.30	0.46
>=3	0.16	0.37	0.08	0.27
Bedrooms	*3.46*	*0.87*	*3.39*	*0.81*
<=2	**0.09**	**0.29**	**0.08**	**0.27**
3	0.47	0.50	0.58	0.50
4	0.34	0.47	0.22	0.42
>=5	0.10	0.29	0.13	0.33
Year Built	*1949*	*34*	*1960*	*29*
<=1929	**0.20**	**0.40**	**0.17**	**0.38**
1930-'49	0.17	0.38	0.19	0.39
1950-'61	0.34	0.47	0.13	0.33
1962-'88	0.19	0.39	0.31	0.47
1989-'03	0.09	0.29	0.20	0.41

Bold Independent variables are base case (omitted)

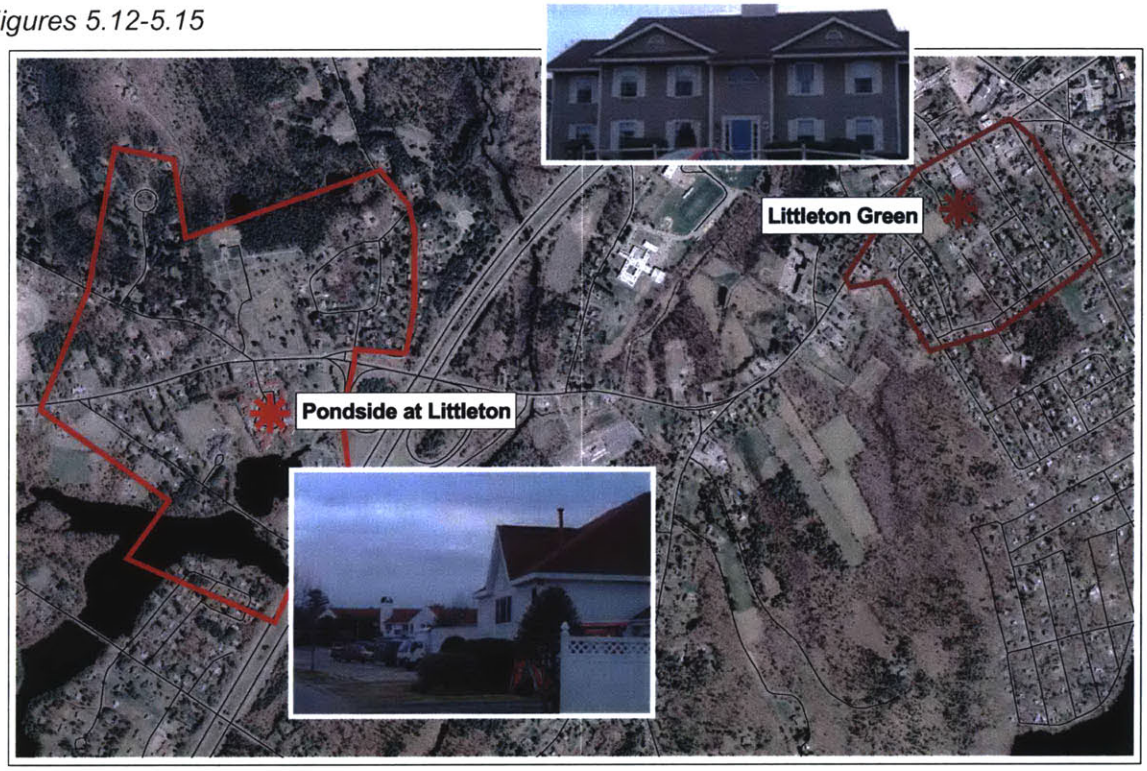
LITTLETON

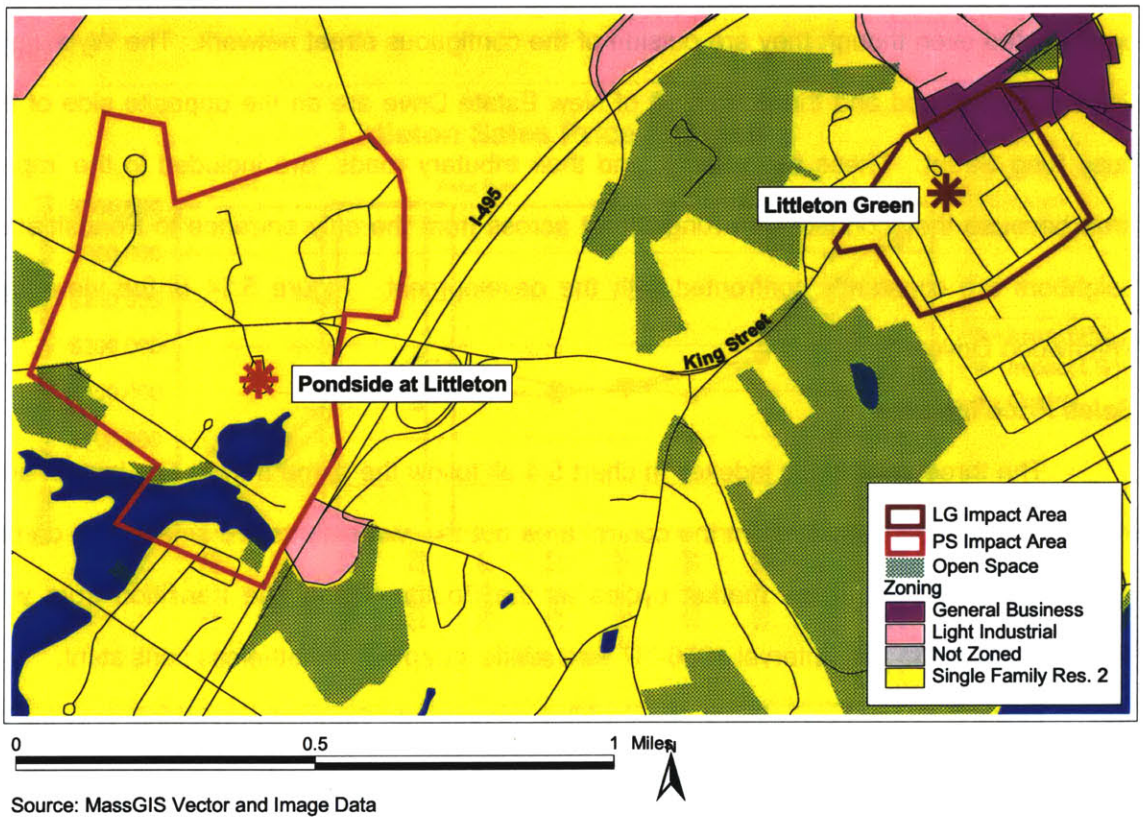
This study evaluates two 40B developments located in the town of Littleton. Each development has an independent impact area. The two projects received comprehensive permit approval in successive years. The analysis periods for the two impact areas overlap, and in an effort to better isolate the influences of the two 40B developments a single control areas is used. The control area includes all single-family homes in the town of Littleton minus the homes in the two impact areas.

Impact Areas

Figures 5.12 and 5.13 show the extents of both impact areas. Pondside and Littleton Green are located relatively close to one another, but not close enough to be considered part of the same residential neighborhood. In addition to distance they are separated by Interstate Highway 495. Both developments are surrounded be single-family residences: Littleton Green is embedded in relatively dense, contiguous neighborhood and Pondside is in the middle of a

Figures 5.12-5.15





Source: MassGIS Vector and Image Data

looser, diffuse residential area.

The impact area surrounding the Littleton Green development is compact and shaped like a square. The development is situated close to the center of the impact area and the majority of houses in the area are abutters. The boundary is defined by King Street (Route 2A) to the north, Goldsmith Street on the east, Lochslea Street along the south and both Edsel Road and Baldwin Hill Road on the west. All the properties in the impact area are part a tight road network and have site lines to the 40B.

The Pondside 40B is also located on King Street, a few miles west of Littleton Green. Pondside's impact area is more spread out and the surrounding land use pattern is dispersed. There are few direct abutters, but the lay of the land combined with the orientation of the site plan make the project very visible. All the houses on Mill Street and those contained by the triangle of Mill Street, King Street and Interstate 495 are considered abutters. Homes on Pleasant Street have a clear view of Pondside across mill pond, and as such are considered to be impacted even though they are outside of the contiguous street network. The Wychwood Drive neighborhood and the homes off of New Estate Drive are on the opposite side of the busy King Street. These two streets, and their tributary roads, are included in the impact area because they connect with King Street across from the only entrance to Pondside: so neighbors are constantly confronted with the development. Figure 5.14 is the view from Wychwood Drive.

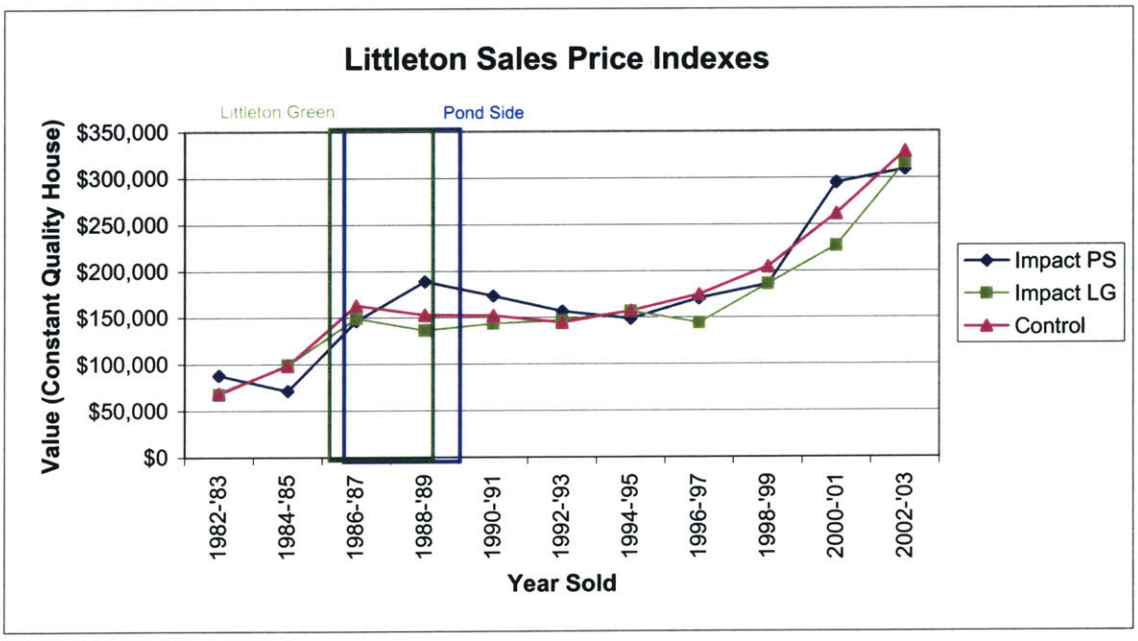
Sales Price Indexes

The three sales price indexes in chart 5.4 all follow the same trend. The impact area indexes deviate periodically from the control area but the movements are small. The control area experienced the same market cycles as the Boston region; the transition from year interval 1984-'85 to year interval 1986-'87 was a little steep but nonetheless consistent.

Littleton Green is an elderly rental 40B development. Generally speaking, housing for the elderly is less offensive to a community, so it is not surprising that the Littleton Green index tracks the control index almost identically.

The Pondside 40B is a much larger and more noticeable multi-family rental development, so it will be the focus of this analysis. The Pondside impact area and the control area had CAGRs of 12% and 15% respectively over the course of twenty one years. More information about compound annual growth rates and index values is in Appendix 5.5. The Pondside impact area experienced a substantially greater annual growth rate during the analysis period than the control area. During this short time the value of a typical house in the Pondside impact area increased annually by over 38%, this is more than double the 16% rate for the typical house in the control area. The value of a typical house in the impact area was greater than the typical control area house from 1988 to 1992. This difference was greatest in the analysis period. It took four years for values in the Pondside impact area to return to a level consistent with the control area. We conclude that the three indexes track the same. The substantive movement in the Pondside impact area index is in favor of this study's hypothesis that 40B developments *do not* negatively impact single-family home prices.

Chart 5.4



Hedonic Model: Control Area

The model performs well; all the coefficients have reasonable values and an understandable relationship with the dependent variable.

Table 5.10

Control					
Dependent variable equals the natural log of price					
Inprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.375	-	0.042	273.740	0.000
intersf	0.000	0.02%	0.000	11.020	0.000
lotsize	0.000	0.00%	0.000	3.480	0.001
bath1.5	0.041	4.14%	0.027	1.500	0.134
bath2	0.039	4.02%	0.026	1.530	0.126
bath>=2.5	0.192	21.20%	0.032	6.000	0.000
bed3	0.126	13.39%	0.022	5.590	0.000
bed>=4	0.171	18.59%	0.029	5.830	0.000
yrblt1943-'55	0.054	5.52%	0.024	2.220	0.026
yrblt1956-'74	0.115	12.24%	0.026	4.510	0.000
yrblt1975-'91	0.157	17.01%	0.028	5.700	0.000
yrblt1992-'03	0.114	12.04%	0.030	3.780	0.000
yrsold1982-'83	-0.864	-57.85%	0.056	-15.530	0.000
yrsold1984-'85	-0.505	-39.65%	0.047	-10.820	0.000
yrsold1988-'89	-0.065	-6.33%	0.043	-1.530	0.126
yrsold1990-'91	-0.070	-6.74%	0.043	-1.620	0.106
yrsold1992-'93	-0.121	-11.41%	0.039	-3.100	0.002
yrsold1994-'95	-0.036	-3.53%	0.041	-0.890	0.376
yrsold1996-'97	0.070	7.20%	0.039	1.800	0.071
yrsold1998-'99	0.227	25.49%	0.038	5.920	0.000
yrsold2000-'01	0.473	60.47%	0.039	12.210	0.000
yrsold2002-'03	0.702	101.77%	0.039	18.050	0.000
N	2031	Adjusted R-Squared	0.6312	Std. Error of the Estimate	0.3485

Omitted variables: bath<=1, bed<=2, yrblt<=1942, yrsold1986-'87

Hedonic Model: Pondside Impact Area

This model also performs well. The move from one bathroom to one and a half bathrooms is clearly very important for adding value. The "bath>=2.5" dummy may be a proxy for other quality features. Again we see with the year built dummy variables that the most recently built houses have a negative relationship with sales price compared to the oldest houses in the sample.

Table 5.11

Impact Pond Side					
Dependent variable equals the natural log of price					
lnprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.433	-	0.204	55.940	0.000
intersf	0.000	0.01%	0.000	0.900	0.369
lotsize	0.000	0.00%	0.000	1.980	0.051
bath1.5	0.315	37.04%	0.167	1.890	0.062
bath2	0.056	5.77%	0.126	0.450	0.657
bath>=2.5	0.169	18.44%	0.199	0.850	0.398
bed>=4	0.019	1.97%	0.116	0.170	0.867
yrblt1950-'55	0.013	1.27%	0.166	0.080	0.939
yrblt1956-'63	0.134	14.34%	0.158	0.850	0.399
yrblt1964-'85	0.178	19.54%	0.152	1.170	0.244
yrblt1986-'03	-0.128	-12.02%	0.125	-1.030	0.307
yrsold1982-'83	-0.509	-39.87%	0.216	-2.350	0.021
yrsold1984-'85	-0.725	-51.56%	0.177	-4.090	0.000
yrsold1988-'89	0.254	28.92%	0.209	1.220	0.227
yrsold1990-'91	0.168	18.27%	0.182	0.920	0.358
yrsold1992-'93	0.068	7.03%	0.180	0.380	0.707
yrsold1994-'95	0.015	1.49%	0.195	0.080	0.940
yrsold1996-'97	0.154	16.61%	0.170	0.900	0.369
yrsold1998-'99	0.240	27.06%	0.174	1.380	0.171
yrsold2000-'01	0.701	101.66%	0.191	3.680	0.000
yrsold2002-'03	0.748	111.23%	0.190	3.930	0.000
N	117	Adjusted R-Squared	0.5268	Std. Error of the Estimate	0.39377

Omitted variables: bath1, bed<=3, yrblt<=1949, yrsold1986-'87

Hedonic Model: Littleton Green Impact Area

So few independent variables are included in the model because the sample is small and the houses are very similar. All things considered the model does a very good job estimating the value of a typical house.

Table 5.12

Impact Littleton Green					
Dependent variable equals the natural log of price					
Inprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.660	-	0.194	59.990	0.000
intersf	0.000	0.02%	0.000	2.000	0.052
lotsize	0.000	0.00%	0.000	0.480	0.631
bath>2	-0.055	-5.36%	0.073	-0.750	0.456
bed3	-0.062	-5.99%	0.052	-1.200	0.239
yrsold1982-'83	-0.791	-54.68%	0.101	-7.830	0.000
yrsold1984-'85	-0.408	-33.53%	0.103	-3.970	0.000
yrsold1988-'89	-0.090	-8.61%	0.085	-1.050	0.298
yrsold1990-'91	-0.039	-3.84%	0.104	-0.380	0.709
yrsold1992-'93	-0.016	-1.54%	0.092	-0.170	0.867
yrsold1994-'95	0.050	5.14%	0.080	0.620	0.536
yrsold1996-'97	-0.033	-3.29%	0.087	-0.390	0.702
yrsold1998-'99	0.221	24.67%	0.079	2.800	0.008
yrsold2000-'01	0.422	52.49%	0.090	4.690	0.000
yrsold2002-'03	0.753	112.29%	0.084	8.980	0.000
N	57	Adjusted R-Squared	0.8675	Std. Error of the Estimate	0.13679

Omitted variables: bath<=1.5, bed<=2, yrsold1986-'87

Housing Profile

The typical house in the Littleton Green impact sample area is smaller in both interior square footage and lot size than houses in the other samples; and it is the least expensive. The biggest-average house is found in the Pondside impact area built on a one acre lot. Houses in the control area are the most expensive and have little more than an acre of lot size. Table 5.13 gives some descriptive statistics, more are located in Appendix 5.5.

Table 5.13

Descriptive Statistics						
	Control		Impact Pondside		Impact Littleton Green	
Variable	Mean	Std. Dev.	Mean	Std. Dev	Mean	Std. Dev
Price	*213,779*	*118,143*	*179,698*	*94,639*	*177,051*	*68,013*
Intersf	*1,866*	*708*	*1,945*	*752*	*1,601*	*420*
Lotsize	*46,663*	*92,369*	*43,594*	*36,533*	*12,984*	*1,951*
Bathrooms	*1.79*	*0.68*	*1.77*	*0.68*	*1.44*	*0.54*
1	-	-	***0.32***	***0.47***	-	-
<=1	**0.32**	**0.47**	-	-	-	-
<=1.5	-	-	-	-	**0.33**	**0.48**
1.5	0.16	0.37	0.21	0.41	-	-
2	0.19	0.39	0.17	0.38	-	-
>=2	-	-	-	-	0.67	0.48
>=2.5	0.32	0.47	0.31	0.46	-	-
Bedrooms	*3.11*	*0.83*	*3.13*	*0.45*	*2.77*	*0.42*
<=2	**0.20**	**0.40**	-	-	-	-
2	-	-	-	-	**0.23**	**0.42**
3	0.50	0.50	-	-	0.77	0.42
<=3	-	-	**0.83**	**0.38**	-	-
>=4	0.30	0.46	0.17	0.38	-	-
Year Built	*1950*	*33*	*1958*	*34*	-	-
<=1942	**0.28**	**0.45**	-	-	-	-
1943-'55	0.29	0.45	-	-	-	-
1956-'74	0.22	0.42	-	-	-	-
1975-'91	0.15	0.36	-	-	-	-
1992-'03	0.06	0.24	-	-	-	-
<=1949	-	-	**0.19**	**0.39**	-	-
1950-'55	-	-	0.16	0.37	-	-
1956-'63	-	-	0.26	0.44	-	-
1964-'85	-	-	0.10	0.30	-	-
1986-'03	-	-	0.29	0.46	-	-

Bold Independent variables are base case (omitted)

GROUP: BURLINGTON, LEXINGTON, LITTLETON, WOBURN

This grouped analysis is presented to overcome statistical imprecision inherent with smaller sample sizes. It is a way to check the results for the individual towns. The impact area indexes of these four towns are generally accurate, displaying strong trends and few signs of statistical randomness. Grouping the towns decreases the standard errors among independent variables, which in turn yields indexes that capture the impact of 40B developments more precisely. The sample of grouped towns does not have an impact area per se. The model is estimating the cumulative effect of the impact areas in each town. The analysis period starts

when the earliest comprehensive permit was issued (Kimball Court Phase I) and ends after the last project was occupied (Kimball Court Phase II). Phase III of Kimball Court in Woburn is excluded because it was constructed much later than developments in the other towns.

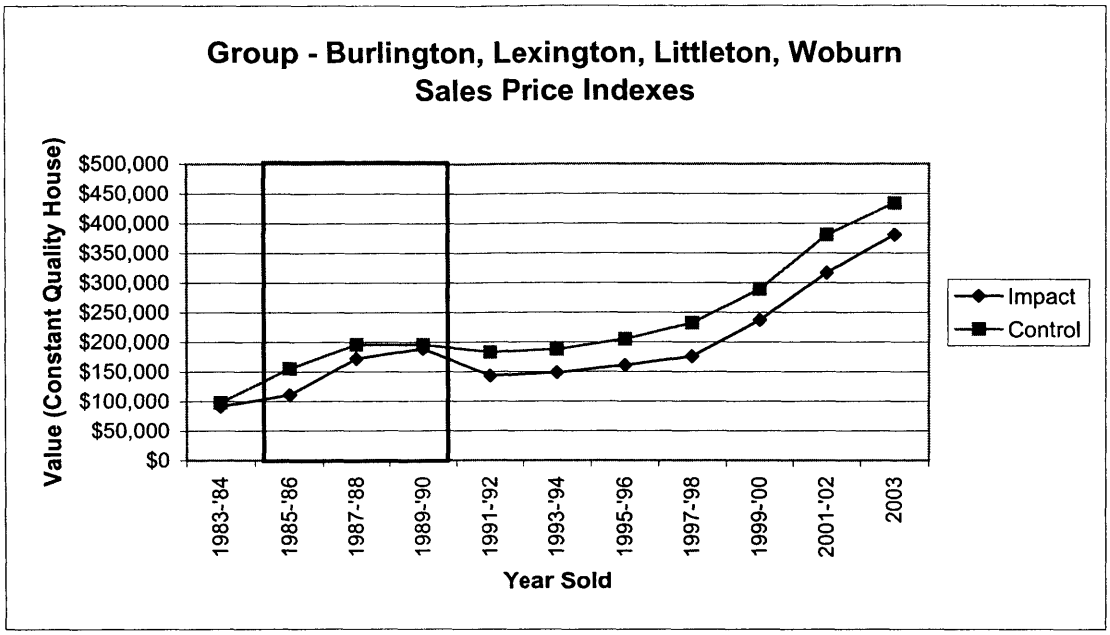
Sales Price Indexes

The indexes for both the control sample and the impact sample are very uniform, they trend the same with very little deviation. The value of a typical house in the impact sample is consistently less than the control sample. Changes do occur with the impact sample price index in the analysis period, indicating that the introduction of a 40B development does influence single-family property value. The influence is positive, as the value for a typical home in the two samples is closest in the analysis period. A consistent separation between indexes exists for all the years following the analysis period. This same amount of separation is also present at the beginning of the analysis period, year interval 1985-'86. The value of a typical home in the impact sample increases each of the next two time intervals until the difference between indexes disappears in 1989-'90.

The control sample experience a higher compound annual growth rate over the duration of the study, however the growth rate was higher in the impact sample during the analysis period. The CAGR for the entire study period is 14.5% in the control sample and 13.9% in the impact sample, these growth rates are very similar. During the analysis period the CAGR in the control and impact samples are 18.9% and 19.9% respectively. More information about sales price index values are in Appendix 5.6.

The indexes of the grouped analysis support the conclusions of the individual towns. There are no effective differences between sales price indexes for the impact sample and control sample, so it can be said that the introduction of a 40B multi-family rental development *does not* negatively impact the value of near by single-family homes.

Chart 5.5



Hedonic Model: Control Sample and Impact Sample

Both models return understandable results. The bathroom independent variables continue to be strong indicators of sales price. The coefficients of the year sold dummy variables are easier to intuit as the first year in the series is omitted.

Table 5.14

Control					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	10.839	-	0.019	565.790	0.000
intersf	0.000	0.02%	0.000	32.240	0.000
lotsize	0.000	0.00%	0.000	1.970	0.049
bath1.5	0.196	21.65%	0.009	20.830	0.000
bath2	0.151	16.28%	0.010	15.350	0.000
bath2.5	0.413	51.09%	0.011	36.100	0.000
bath>=3	0.481	61.69%	0.015	31.820	0.000
bed3	0.080	8.34%	0.011	7.630	0.000
bed4	0.111	11.69%	0.013	8.800	0.000
bed>=5	0.144	15.48%	0.018	7.820	0.000
yrblt1947-'55	0.050	5.17%	0.009	5.520	0.000
yrblt1956-'74	0.025	2.51%	0.009	2.870	0.004
yrblt1975-'89	0.008	0.80%	0.011	0.710	0.480
yrblt1990-'03	-0.128	-12.02%	0.013	-10.080	0.000

Table 5.14 continued

yrsold1985-'86	0.462	58.72%	0.020	22.640	0.000
yrsold1987-'88	0.693	100.07%	0.018	38.600	0.000
yrsold1989-'90	0.692	99.68%	0.019	37.090	0.000
yrsold1991-'92	0.624	86.67%	0.018	34.820	0.000
yrsold1993-'94	0.650	91.61%	0.017	37.220	0.000
yrsold1995-'96	0.739	109.46%	0.017	42.350	0.000
yrsold1997-'98	0.863	137.12%	0.017	49.750	0.000
yrsold1999-'00	1.083	195.45%	0.017	62.120	0.000
yrsold2001-'02	1.357	288.59%	0.018	76.680	0.000
yrsold2003	1.488	342.86%	0.020	76.000	0.000
N	17323	Adjusted R-Squared	0.532	Std. Error of the Estimate	0.40776

Omitted variables: bath<=1, bed<=2, yrblt<=1946, yrsold1983-'84

Table 5.15

Impact					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.082	-	0.102	108.950	0.000
intersf	0.000	0.01%	0.000	2.060	0.040
lotsize	0.000	0.00%	0.000	-0.570	0.572
bath1.5	0.223	24.99%	0.052	4.250	0.000
bath2	0.091	9.51%	0.050	1.820	0.070
bath>=2.5	0.338	40.22%	0.067	5.040	0.000
bed>=4	0.028	2.88%	0.048	0.590	0.558
yrblt1947-'55	0.064	6.65%	0.053	1.210	0.227
yrblt1956-'74	0.106	11.14%	0.049	2.170	0.030
yrblt1975-'89	0.136	14.53%	0.073	1.850	0.064
yrblt1990-'03	0.142	15.25%	0.062	2.290	0.023
yrsold1985-'86	0.193	21.25%	0.100	1.920	0.055
yrsold1987-'88	0.632	88.23%	0.090	7.030	0.000
yrsold1989-'90	0.725	106.55%	0.095	7.600	0.000
yrsold1991-'92	0.447	56.38%	0.095	4.700	0.000
yrsold1993-'94	0.485	62.41%	0.091	5.340	0.000
yrsold1995-'96	0.566	76.03%	0.094	6.030	0.000
yrsold1997-'98	0.655	92.56%	0.085	7.730	0.000
yrsold1999-'00	0.954	159.63%	0.091	10.530	0.000
yrsold2001-'02	1.243	246.75%	0.093	13.350	0.000
yrsold2003	1.428	317.12%	0.107	13.390	0.000
N	448	Adjusted R-Squared	0.5041	Std. Error of the Estimate	0.36206

Omitted variables: bath1, bed<=3, yrblt<=1946, yrsold1983-'84

Housing Profile

The average house for each sample is comparable in all structural attributes. This is expected from a statistical view point because as observations increase the sample becomes more representative of the population. The uniformity helps our analysis as the constant

quality houses that are being priced in each index are in effect direct substitutes. Table 5.16 and Appendix 5.5 provide descriptive statistics for each sample.

Table 5.16

Descriptive Statistics				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*268,811*	*184,313*	*207,939*	*115,117*
Intersf	*1,811*	*757*	*1,779*	*656*
Lotsize	*20,992*	*35,709*	*20,291*	*15,505*
Bathrooms	*1.87*	*0.76*	*1.71*	*0.64*
<=1	**0.25**	**0.44**	-	-
1	-	-	**0.32**	**0.47**
1.5	0.23	0.42	0.22	0.41
2	0.23	0.42	0.26	0.44
>=2.5	-	-	0.15	0.36
2.5	0.21	0.41	-	-
>=3	*0.09*	*0.29*	-	-
Bedrooms	*3.29*	*0.81*	*3.22*	*0.69*
<=2	**0.12**	**0.32**	-	-
3	0.54	0.50	-	-
<=3	-	-	***0.76***	**0.43**
>=4	-	-	*0.24*	0.43
4	0.28	0.45	-	-
>=5	0.06	0.23	-	-
Year Built	*1953*	*34*	*1951*	*40*
<=1946	**0.51**	**0.50**	**0.56**	**0.50**
1947-'55	0.22	0.41	0.21	0.41
1956-'74	0.30	0.46	0.31	0.46
1975-'89	0.12	0.33	0.10	0.30
1990-'03	0.10	0.31	0.14	0.35

Bold Independent variables are base case (omitted)

MANSFIELD

Mansfield is included in the second grouping of towns along with Norwood and Randolph. The Mansfield Depot 40B development was constructed in two phases. The two phases occurred in consecutive year intervals so the analysis period views development of Mansfield Depot as a singular event lasting five years. The introduction of the analysis period starts with the issuance of the comprehensive permit for phase I and concludes in the year phase II was fully occupied.

Impact Area

Mansfield Depot is located close to the Foxborough border just north of the thickly-settled town center. The impact area is triangular shaped with two long sides formed by Oakland Street on the west and route 106 on the south. The eastern border captures two residential cul-de-sacs before connecting back with Mansfield Depot to the north. Figure 5.16 illustrates that the development is surrounded by forest. Because of the open space, there are not many single-family abutters and no contiguous road network. The project footprint is large and many of the buildings are visible from adjacent properties. Figure 5.18 shows the size of a typical building in the development. A formal bike and walking path extends from the south west corner of Mansfield Depot through the wood behind many houses to the playing fields and elementary school south of route 106. The bike and walking path strengthens the development's connection to its neighbors. The actual extent of the impact was established after consulting the Director of Planning and building department officials.

Figures 5.16-5.18

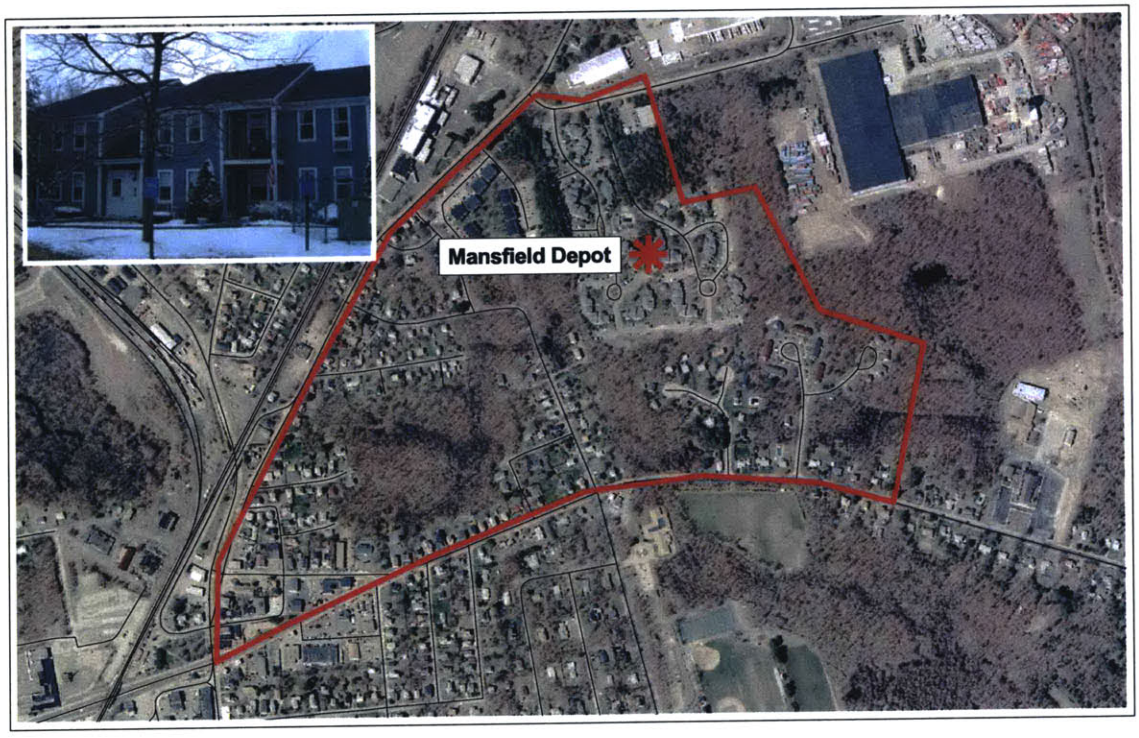
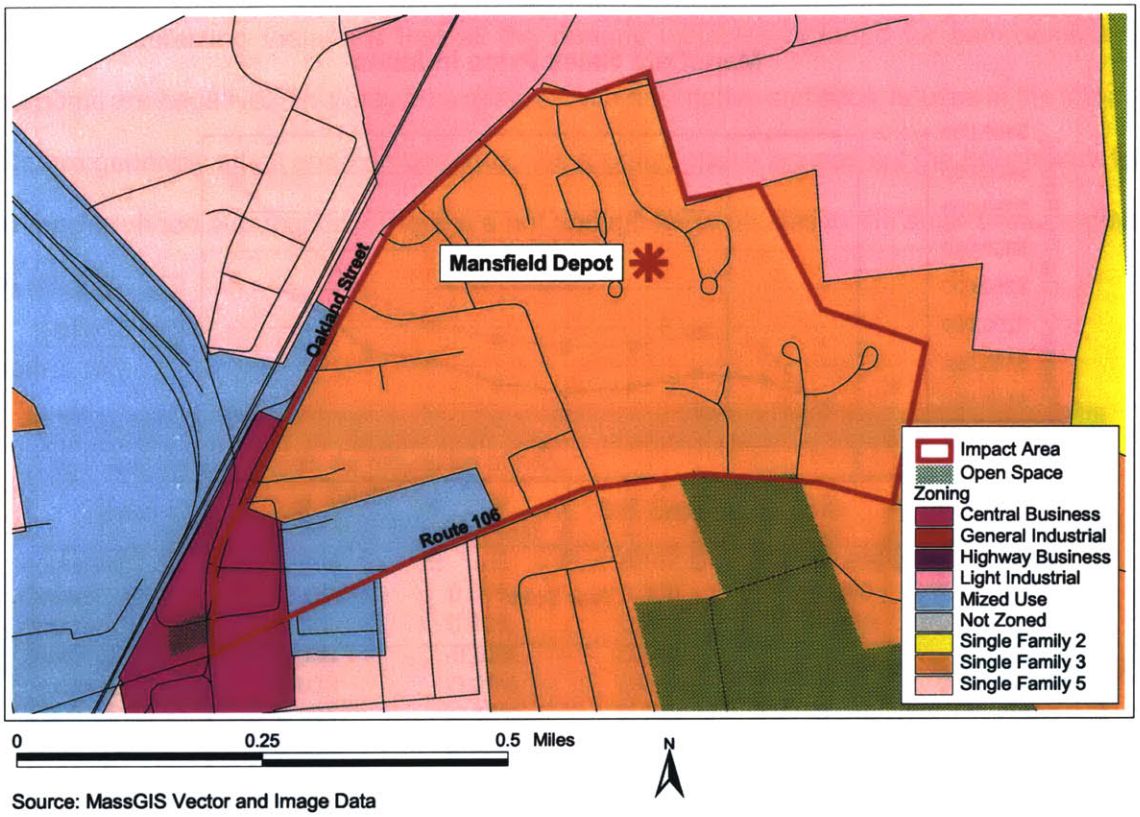


Figure 5.17



Source: MassGIS Vector and Image Data

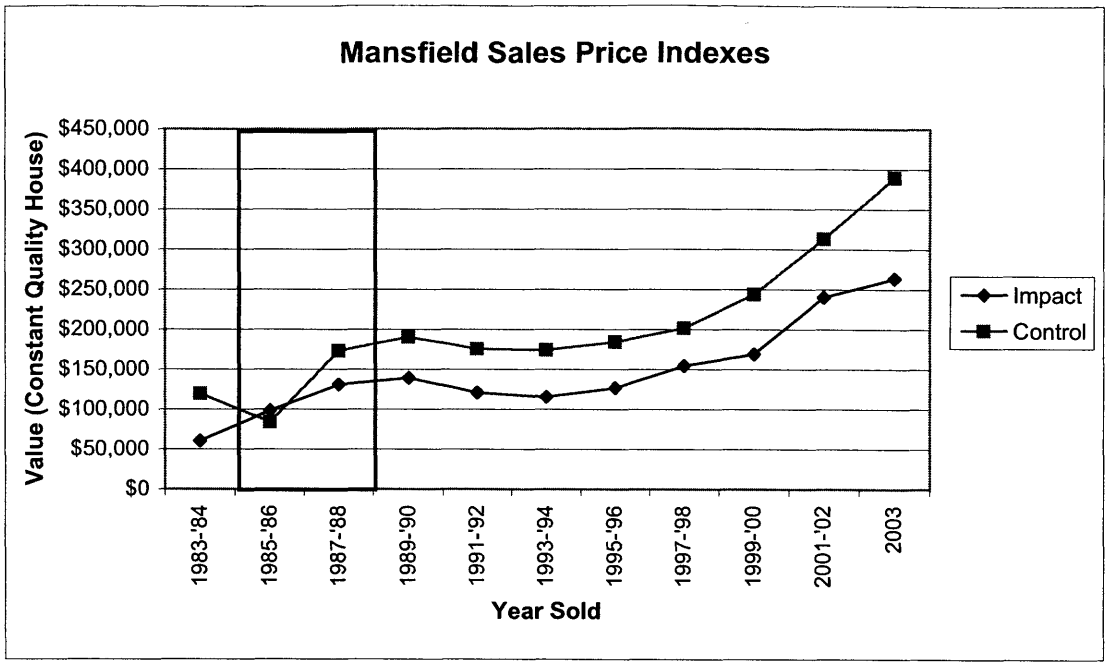
Sales Price Indexes

The indexes for the impact and control areas track very closely, in fact they are the most consistent of this study for an individual town. The only difference between the two indexes happened in year sold interval 1985-'86, when the value of a typical house in the control area decreased drastically. There is no obvious reason for this precipitous drop and immediate rebound.

The impact area experienced greater annual appreciation rates in the analysis period and for the whole timeframe. Growth rates and index values can be found in Appendix 5.6.

It is concluded that the introduction of the Mansfield Depot *did not* negatively impact the sales price of adjacent single-family homes.

Chart 5.6



Hedonic Model: Control Area

This model performs well, with understandable coefficients and low standard errors. The only anomalous feature is the coefficient for "yrsold1985-'86", this the year of the drop.

Table 5.17

Control					
Dependent variable equals the natural log of price					
lnprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.054	-	0.032	343.530	0.000
intersf	0.000	0.01%	0.000	9.790	0.000
lotsize	0.000	0.00%	0.000	7.290	0.000
bath1.5	0.082	8.59%	0.014	5.720	0.000
bath2	0.057	5.84%	0.015	3.710	0.000
bath>=2.5	0.100	10.49%	0.018	5.410	0.000
bed3	0.047	4.83%	0.019	2.530	0.012
bed>=4	0.084	8.73%	0.021	3.940	0.000
yrblt1955-'64	0.092	9.62%	0.014	6.460	0.000
yrblt1965-'78	0.192	21.12%	0.017	11.250	0.000
yrblt1979-'92	0.265	30.39%	0.020	13.320	0.000
yrblt1993-'03	0.173	18.92%	0.025	6.800	0.000
yrsold1985-'86	-0.352	-29.70%	0.034	-10.390	0.000
yrsold1987-'88	0.371	44.90%	0.028	13.280	0.000
yrsold1989-'90	0.465	59.19%	0.027	16.950	0.000
yrsold1991-'92	0.384	46.87%	0.028	13.750	0.000
yrsold1993-'94	0.378	45.99%	0.027	14.200	0.000
yrsold1995-'96	0.434	54.35%	0.026	16.470	0.000
yrsold1997-'98	0.523	68.75%	0.026	19.840	0.000
yrsold1999-'00	0.713	104.01%	0.026	26.970	0.000
yrsold2001-'02	0.963	161.97%	0.027	35.630	0.000
yrsold2003	1.181	225.91%	0.026	44.930	0.000
N	4174	Adjusted R-Squared	0.6005	Std. Error of the Estimate	0.30739

Omitted variables: bath1, bed<=2, yrblt<=1954, yrsold1983-'84

Hedonic Model: Impact Area

An interesting feature is that all the dummy variables included for bathrooms and bedrooms are negative. This may be explained with descriptive statistics, houses in the impact area are generally small and homogenous. As a group, these houses set the benchmark for the neighborhood sub-market. There are not enough large houses in the small area to affect the market.

Table 5.18

Impact					
Dependent variable equals the natural log of price					
lnprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	10.806	-	0.107	100.990	0.000
intersf	0.000	0.01%	0.000	1.360	0.179
lotsize	0.000	0.00%	0.000	-2.190	0.031
bath1.5	-0.005	-0.53%	0.049	-0.110	0.915
bath>=2	-0.033	-3.29%	0.079	-0.420	0.674
bed>=4	-0.025	-2.48%	0.049	-0.510	0.608
yrblt_1920	0.029	2.96%	0.049	0.600	0.550
yrblt_1921-'70	0.031	3.17%	0.057	0.550	0.583
yrblt_1971-'03	0.433	54.23%	0.067	6.440	0.000
yrsold1985-'86	0.487	62.71%	0.095	5.150	0.000
yrsold1987-'88	0.772	116.35%	0.076	10.140	0.000
yrsold1989-'90	0.835	130.59%	0.113	7.380	0.000
yrsold1991-'92	0.693	100.06%	0.072	9.630	0.000
yrsold1993-'94	0.649	91.34%	0.077	8.430	0.000
yrsold1995-'96	0.741	109.70%	0.078	9.490	0.000
yrsold1997-'98	0.939	155.72%	0.072	12.970	0.000
yrsold1999-'00	1.030	179.97%	0.080	12.810	0.000
yrsold2001-'02	1.381	298.00%	0.073	18.930	0.000
yrsold2003	1.473	336.16%	0.104	14.190	0.000
N	108	Adjusted R-Squared	0.8351	Std. Error of the Estimate	0.16665

Omitted variables: bath1, bed<=3, yrblt<=1919, yrsold1983-'84

Housing Profile

Houses in the impact area are smaller across the board and sell for less than houses in the control area. Table 5.19 and Appendix 5.6 provide descriptive statistics for the samples.

Table 5.19

Table 5.19

Descriptive Statistics				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*210,715*	*103,441*	*148,340*	*59,760*
Intersf	*1,880*	*633*	*1,450*	*352*
Lotsize	*32,195*	*19,897*	*12,229*	*12,809*
Bathrooms	*1.92*	*0.62*	*1.38*	*0.41*
1	**0.21**	**0.41**	**0.43**	**0.50**
1.5	0.20	0.40	0.43	0.50
2	0.15	0.35	-	-
>=2			0.15	0.36
>=2.5	0.44	0.50	-	-
Bedrooms	*3.29*	*0.69*	*3.14*	*0.55*
<=2	**0.10**	**0.30**	-	-
3	0.53	0.50	-	-
<=3	-	-	**0.77**	**0.42**
>=4	0.37	0.48	0.23	0.42
Year Built	*1969.936*	*36.647*	*1935*	*29*
<=1954	**0.18**	**0.38**	-	-
1955-'64	0.21	0.41	-	-
1965-'78	0.18	0.38	-	-
1979-'92	0.23	0.42	-	-
1993-'03	0.21	0.41	-	-
<=1919	-	-	**0.26**	**0.44**
1920	-	-	0.31	0.47
1921-'70	-	-	0.20	0.40
1971-03	-	-	0.22	0.42

Bold Independent variables are base case (omitted)

NORWOOD

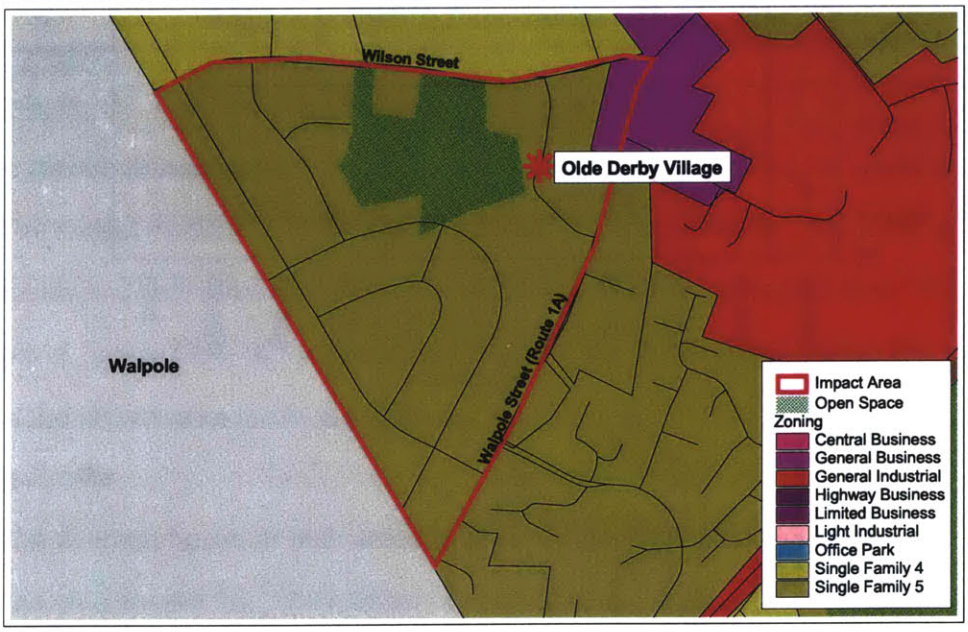
Impact Area

The impact area surrounding the Olde Derby Village 40B development is shaped like an equilateral triangle. Olde Derby Village occupies the eastern point of the triangle. The impact area is contained by three streets: Wilson on the north, Garden Parkway to the southwest and Walpole Street to the southeast. Houses located on both sides of these boundary streets are considered in the impact area. The area is not defined by an interconnected street network, but all the single-family houses are near by and many are abutters.

Figure 5.19 depicts the relationship of Olde Derby Village to the surrounding area. Walpole Street is a major thoroughfare that separates the impact area. The development mediates between the adjacent commercial and industrial uses to the east and the isolated

single-family district. Olde Derby Village is situated on a small hill, with building terraced up the hill. The site elevation increases the development's visibility to residential neighbors. Figure 5.21 is a photograph of the transition between the development and the residential neighborhood. It shows that buildings in the development are quite a bit larger than adjacent homes, and that neighbors are close.

Figures 5.19-5.21



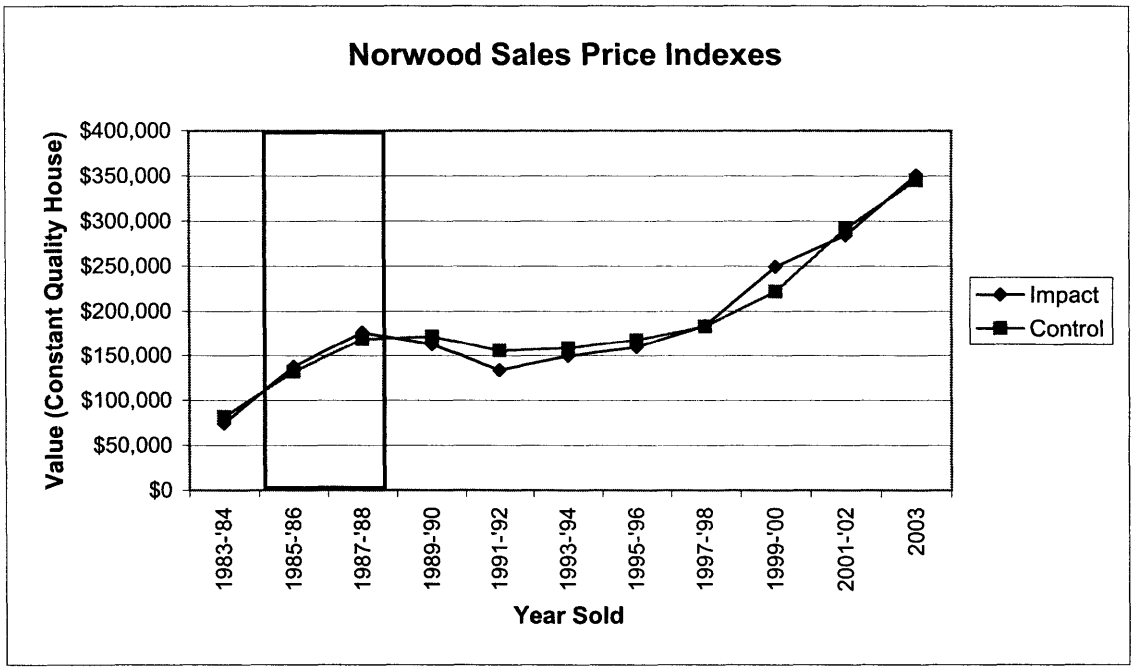
0 0.25 0.5 Miles

Source: MassGIS Vector and Image Data

Sales Price Indexes

Chart 5.7 displays the sales price indexes for the impact and control areas. The comparative indexes follow very similar price paths. The overall trend mirrors the market experience of the Boston area for the same time period. The average house value for the control and impact areas are nearly identical through time. The recession had a slightly greater effect on home values in the impact area. Compound annual growth rates for the two areas are comparable for the analysis period and entire study period. In both instances the impact area outperformed the control area. Growth rates and index values are available in Appendix 5.7. In sum, the are no effective differences between the impact area and control area indexes, so we conclude that the introduction of the Olde Derby Village 40B development *did not* negatively impact the sales price of residential homes.

Chart 5.7



Hedonic Model: Control Area

Coefficients of the independent variables are very smooth and well behaved.

Table 5.20

Control					
Dependent variable equals the natural log of price					
lnprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.232	-	0.028	395.600	0.000
intersf	0.000	0.02%	0.000	15.140	0.000
lotsize	0.000	0.00%	0.000	5.730	0.000
bath1.5	0.047	4.81%	0.012	3.880	0.000
bath2	0.048	4.90%	0.014	3.320	0.001
bath>=2.5	0.074	7.66%	0.018	4.210	0.000
bed3	0.060	6.18%	0.013	4.580	0.000
bed>=4	0.094	9.86%	0.017	5.690	0.000
yrblt1924_'49	0.120	12.79%	0.015	7.840	0.000
yrblt1950_'54	0.120	12.75%	0.015	7.780	0.000
yrblt1955_'62	0.192	21.11%	0.015	12.890	0.000
yrblt1963_'03	0.300	34.97%	0.016	18.460	0.000
yrsold1983-'84	-0.480	-38.14%	0.032	-15.030	0.000
yrsold1987-'88	0.245	27.77%	0.026	9.570	0.000
yrsold1989-'90	0.263	30.09%	0.026	10.040	0.000
yrsold1991-'92	0.164	17.88%	0.026	6.420	0.000
yrsold1993-'94	0.184	20.18%	0.025	7.410	0.000
yrsold1995-'96	0.240	27.15%	0.025	9.500	0.000
yrsold1997-'98	0.327	38.66%	0.024	13.720	0.000
yrsold1999-'00	0.520	68.29%	0.024	21.470	0.000
yrsold2001-'02	0.795	121.45%	0.024	32.660	0.000
yrsold2003	0.963	161.86%	0.029	33.560	0.000
N	3593	Adjusted R-Squared	0.6082	Std. Error of the Estimate	0.27808

Omitted variables: bath1, bed<=2, yrblt<=1923, yrsold1985-'86

Hedonic Model: Impact Area

The impact model also does a good job estimating coefficients. The dummy variables for bathrooms and bedrooms contribute substantially to determining house value. The negative coefficient of "yrsold1991-'92" is responsible for the dip in the index during the recession. Output of the impact area model is in table 5.21.

Housing Profile

The average house in both areas is similar. The typical control area house is larger but located on a smaller lot. The number of bedrooms and bathrooms are the same, 3 and 2 respectively. Table 5.22 and Appendix 5.7 provide descriptive statistics.

Table 5.21

Impact					
Dependent variable equals the natural log of price					
Inprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.107	-	0.129	86.220	0.000
intersf	0.000	0.02%	0.000	2.610	0.011
lotsize	0.000	0.00%	0.000	1.910	0.059
bath1.5	0.288	33.33%	0.067	4.280	0.000
bath2	0.211	23.44%	0.080	2.630	0.010
bath>=2.5	0.359	43.13%	0.089	4.020	0.000
bed3	0.124	13.24%	0.072	1.720	0.089
bed>=4	0.152	16.39%	0.110	1.380	0.171
yrblt1960_'65	0.174	19.00%	0.043	4.000	0.000
yrblt1966_'03	0.097	10.14%	0.071	1.350	0.180
yrsold1983-'84	-0.691	-49.90%	0.125	-5.520	0.000
yrsold1987-'88	0.246	27.92%	0.097	2.540	0.013
yrsold1989-'90	0.167	18.13%	0.105	1.580	0.118
yrsold1991-'92	-0.030	-2.92%	0.101	-0.300	0.768
yrsold1993-'94	0.083	8.70%	0.096	0.870	0.388
yrsold1995-'96	0.147	15.89%	0.099	1.490	0.140
yrsold1997-'98	0.287	33.30%	0.103	2.800	0.006
yrsold1999-'00	0.595	81.30%	0.101	5.910	0.000
yrsold2001-'02	0.726	106.65%	0.100	7.290	0.000
yrsold2003	0.936	154.89%	0.107	8.780	0.000
N	106	Adjusted R-Squared	0.8295	Std. Error of the Estimate	0.1762

Omitted variables: bath1, bed<=2, yrblt<=1959, yrsold1985-'86

Table 5.22

Descriptive Statisticis				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*203,612*	*85,087*	*212,842*	*86,544*
Intersf	*1,522*	*536*	*1,399*	*348*
Lotsize	*12,095*	*8,115*	*14,002*	*5,569*
Bathrooms	*1.66*	*0.59*	*1.69*	*0.46*
1	**0.28**	**0.45**	**0.12**	**0.33**
1.5	0.35	0.48	0.52	0.50
2	0.19	0.39	0.23	0.42
>=2.5	0.18	0.38	0.13	0.34
Bedrooms	*3.12*	*0.81*	*2.98*	*0.50*
<=2	**0.18**	**0.38**	**0.08**	**0.28**
3	0.57	0.49	0.84	0.37
>=4	0.25	0.43	0.08	0.27
Year Built	*1946*	*27*	*1953*	*24*
<=1923	**0.20**	**0.40**		
1924-'49	0.18	0.38	-	-
1950-'54	0.19	0.39	-	-
1955-'62	0.24	0.43	-	-
1963-'03	0.20	0.40	-	-
<=1959	-	-	**0.34**	**0.48**
1960-'65	-	-	0.55	0.50
1966-'03	-	-	0.11	0.32

Bold Independent Variables are base case (omitted)

RANDOLPH

Liberty Place is a large, dense, multi-family development situated in the heart of two contiguous residential neighborhoods. The analysis period for Liberty Place examines the year intervals 1987-'88 and 1989-'90.

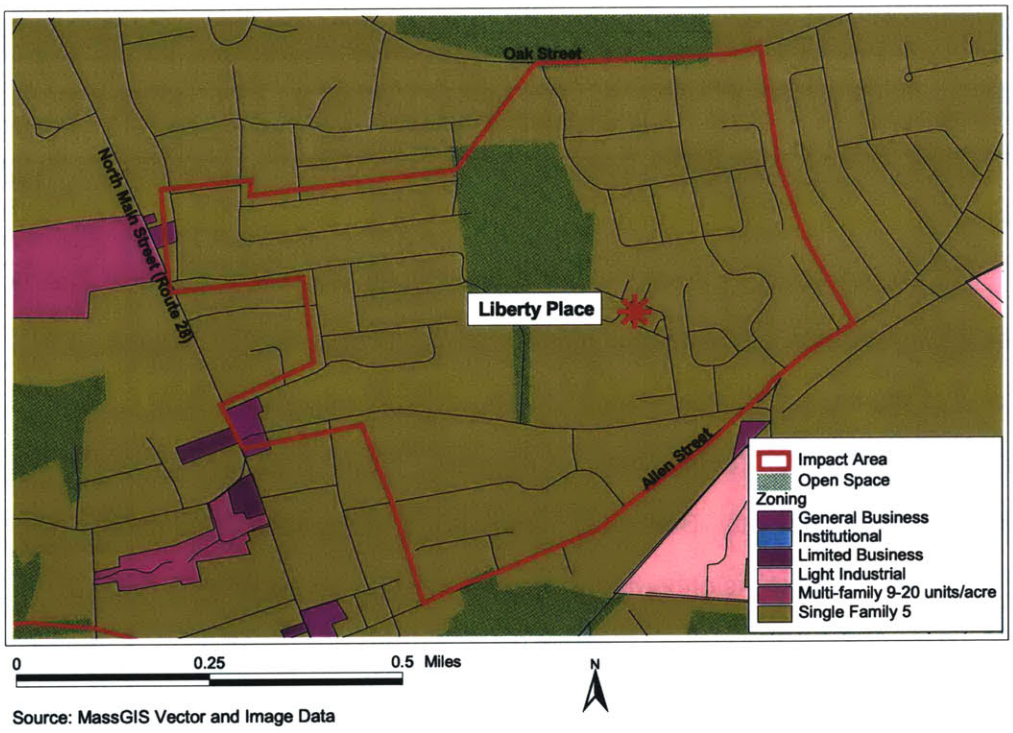
Impact Area

The impact area encircles part of a contiguous residential district. The boundary weaves through streets and is defined more by proximity than distinct features. In determining the extent of the impact area we visited the site and met with town official in the Department of Public Works and the Zoning Board of Appeals. Figure 5.22 reveals how Liberty Place straddles two neighborhoods. Both neighborhoods are thickly settled and defined by block-like street patterns. The two neighborhoods are knit together by the playing fields around Lyons School.

The neighborhood to the west is connected to secondary roads and the playing fields. The fields create site lines to the project and a conduit for residents of Liberty Place to enter the neighborhood. Many of the homes in the eastern neighborhood are abutters of Liberty Place. The development is located on a rise making it more visible to these residents.

Figure 5.22, 5.24

Figure 5.23



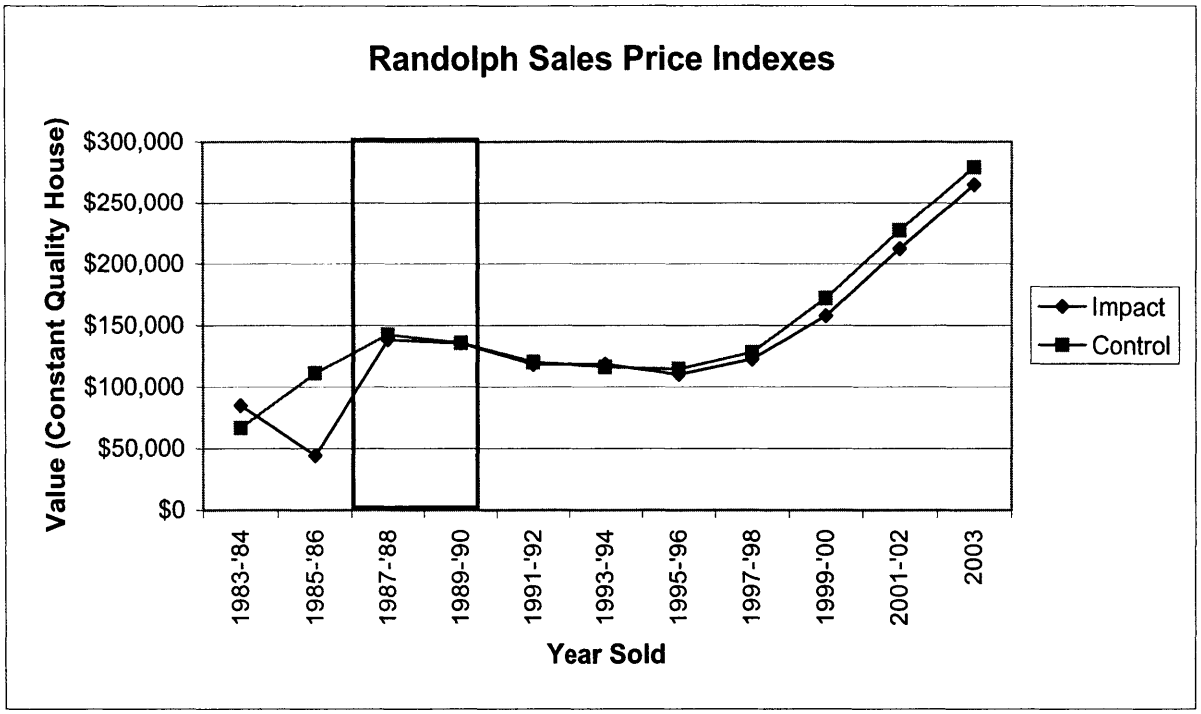
Source: MassGIS Vector and Image Data

Sales Price Indexes

The sales price indexes for the impact area and control area trend similarly with the exception of year interval 1985-'86. In this year interval the impact area index drops drastically. We have doubts to whether this drop is authentic and if so, whether it is attributable to the Liberty Place 40B. Theoretically speaking, we would expect an efficient market to have this type reaction to negative information. However we would also expect the recovery from the shock to be gradual, occurring after many successive years. We investigated the data to see if the sharp change could be explained. There are four observations for this year interval. Two of the four observations are recorded sales price of $26,000; another is $50,000 and the last $150,000. There is a good chance that the two low observations represent "non-arm's length" transactions and thus are not accurate.[4] We believe the estimated value of a typical house in the impact area for year interval 1987-'88 is artificially low and not the result of information about Liberty Place's comprehensive permit application. We feel this way for two reasons (1) the index recovers too perfectly for such an imperfect system like a housing market; and (2) there are erroneous observations in the sample. Let's suppose for just a moment that the drop

is due to the introduction of the Liberty Place 40B, house values still returned to normal the following year interval. This means there was a brief period of "panic" sales after which time prices returned to a stabilized state once the initial threat was proved innocuous. In either scenario the singular price deviation is discounted because the impact area index absolutely matches the trend of the control area index. From this we conclude that the introduction of the Liberty Place 40B development *did not* negatively

Chart 5.8



Hedonic Model: Control Area

This model does very well, the coefficients of the independent variables relate to the dependent variables how we expect them to. Dummy variable "bath>=2.5" appears to proxy for features not controlled for in the model.

Table 5.23

Control					
Dependent variable equals the natural log of price					
Inprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.142	-	0.024	455.100	0.000
intersf	0.000	0.01%	0.000	11.690	0.000
lotsize	0.000	0.00%	0.000	3.950	0.000
bath1.5	0.077	7.96%	0.010	7.300	0.000
bath2	0.093	9.76%	0.012	7.510	0.000
bath>=2.5	0.155	16.79%	0.016	10.000	0.000
bed3	0.037	3.72%	0.012	3.100	0.002
bed>=4	0.026	2.59%	0.016	1.600	0.110
yrblt1950-'59	0.157	16.97%	0.011	14.710	0.000
yrblt1960-'69	0.225	25.21%	0.012	18.590	0.000
yrblt1970-'89	0.284	32.86%	0.014	20.970	0.000
yrblt1990-'03	0.229	25.76%	0.019	11.990	0.000
yrsold1983-'84	-0.511	-40.03%	0.026	-19.820	0.000
yrsold1987-'88	0.251	28.48%	0.022	11.200	0.000
yrsold1989-'90	0.202	22.38%	0.023	8.900	0.000
yrsold1991-'92	0.080	8.36%	0.022	3.680	0.000
yrsold1993-'94	0.045	4.63%	0.020	2.220	0.027
yrsold1995-'96	0.030	3.08%	0.021	1.470	0.140
yrsold1997-'98	0.142	15.31%	0.020	7.140	0.000
yrsold1999-'00	0.439	55.07%	0.020	21.520	0.000
yrsold2001-'02	0.717	104.88%	0.020	35.370	0.000
yrsold2003	0.923	151.71%	0.023	40.960	0.000
N	5839	Adjusted R-Squared	0.5925	Std. Error of the Estimate	0.29753

Omitted variables: bath1, bed<=2, yrblt<=1949, yrsold1985-'86

Hedonic Model: Impact Area

In the impact area model dummy variables "bath2" and "bath>=2.5" are almost certainly proxies for other quality features. The coefficient for "bed>=4" is negative because eighty percent of the houses in the sample have three or fewer bedrooms, and this minority attribute does not have enough weight among the other houses in the sample to generate a positive relationship sales price.

Housing Profile

The average house in both sample are nearly identical. The difference between interior space is only seven square feet. Likewise lot size, bedrooms, and bathrooms all line up. The fact that the value of the average house for the impact and control are is so close indicates that the impact neighborhood is identical in quality to the rest of the town.

Table 5.24

Impact					
Dependent variable equals the natural log of price					
lnprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.551	-	0.107	100.990	0.000
intersf	0.000	0.00%	0.000	0.230	0.816
lotsize	0.000	0.00%	0.000	-0.040	0.972
bath1.5	-0.011	-1.12%	0.119	-0.090	0.925
bath2	0.217	24.26%	0.122	1.780	0.079
bath>=2.5	0.356	42.79%	0.132	2.700	0.008
bed>=4	-0.166	-15.31%	0.117	-1.410	0.160
yrblt1936-'65	0.210	23.37%	0.116	1.810	0.073
yrblt1966-'88	0.222	24.81%	0.117	1.900	0.060
yrblt1989-'03	0.206	22.86%	0.107	1.920	0.057
yrsold1983-'84	-0.466	-37.22%	0.290	-1.600	0.112
yrsold1985-'86	-1.122	-67.42%	0.216	-5.200	0.000
yrsold1987-'88	0.021	2.14%	0.212	0.100	0.921
yrsold1991-'92	-0.135	-12.64%	0.153	-0.880	0.380
yrsold1993-'94	-0.134	-12.55%	0.128	-1.050	0.296
yrsold1995-'96	-0.208	-18.81%	0.123	-1.690	0.094
yrsold1997-'98	-0.101	-9.58%	0.132	-0.770	0.446
yrsold1999-'00	0.152	16.41%	0.128	1.190	0.237
yrsold2001-'02	0.451	56.93%	0.131	3.450	0.001
yrsold2003	0.671	95.62%	0.175	3.840	0.000
N	124	Adjusted R-Squared	0.451	Std. Error of the Estimate	0.37346

Omitted variables: bath1, bed<=3, yrblt<=1935, yrsold1985-'86

Table 5.25

Descriptive Statistics				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*157,314*	*68,229*	*150,425*	*65,902*
Intersf	*1,337*	*401*	*1,343*	*380*
Lotsize	*12,098*	*5,216*	*13,834*	*6,320*
Bathrooms	*1.53*	*0.59*	*1.58*	*0.61*
1	**0.43**	**0.49**	**0.42**	**0.50**
1.5	0.26	0.44	0.20	0.40
2	0.17	0.38	0.21	0.41
>=2.5	0.14	0.35	0.17	0.38
Bedrooms	*3.03*	*0.69*	*3.16*	*0.60*
<=2	**0.16**	**0.37**	-	-
3	0.67	0.47	-	-
<=3	-	-	**0.80**	**0.40**
>=4	0.17	0.38	0.20	0.40
Year Built	*1950*	*33*	*1952*	*47*
<=1949	**0.28**	**0.45**	-	-
1950-'59	0.29	0.45	-	-
1960-'69	0.22	0.42	-	-
1970-'89	0.15	0.36	-	-
1990-'03	0.06	0.24	-	-
<=1919	-	-	**0.25**	**0.43**
1920	-	-	0.27	0.44
1921-'70	-	-	0.23	0.43
1971-03	-	-	0.25	0.43

Bold Independent Variales are base case (omitted)

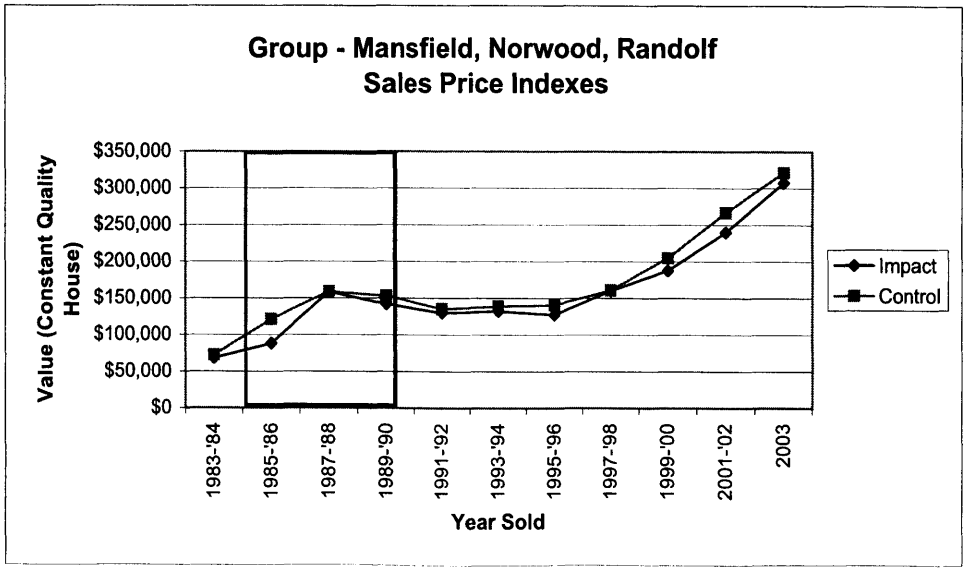
GROUP: MANSFIELD, NORWOOD AND RANDOLPH

The analysis period for the second group of towns is defined by the same criteria of the first group. In begins when the earliest 40B received its comprehensive permit, Norwood's Olde Derby Village, and ends when the last development was occupied. Both Liberty Place and Mansfield Depot were placed in service the same year.

Sales Price Indexes

The sales price indexes for the second grouped analysis are given in chart 5.8. The indexes for the impact sample and control sample move nearly identically throughout time. One small difference occurs in year interval 1985-'86, the impact sample index dips differentially lower than the control sample index. This slight variation is likely due to the erroneous, low value present in Randolph's impact sample, and as such the difference is again discounted. The two samples have equivalent compound annual growth rates. Looking at the timeline of the whole study, the impact sample grew annually by 14.7% to the control sample's 14.5%. Annual growth rates during the analysis period are equally matched, the control sample realized a 20.6% rate and the impact sample realized 20.1%. From this contributory analysis we confirm the conclusions reached for the individual towns that the introduction of a multi-family, rental 40B development into a residential neighborhood *does not* negatively impact the value of single-family homes.

Chart 5.9



Hedonic Model: Control Area

The control model returns accurate estimates for independent variable coefficients. Furthermore all the coefficients exhibit understandable relationships with dependent variable. Table 5.26 gives the model's results.

Table 5.26

Control					
Dependent variable equals the natural log of price					
lnprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	10.588	-	0.019	546.410	0.000
intersf	0.000	0.02%	0.000	29.930	0.000
lotsize	0.000	0.00%	0.000	0.300	0.766
bath1.5	0.099	10.41%	0.008	12.680	0.000
bath2	0.090	9.41%	0.009	9.940	0.000
bath>=2.5	0.170	18.51%	0.011	15.480	0.000
bed3	0.041	4.20%	0.009	4.700	0.000
bed>=4	0.062	6.38%	0.011	5.670	0.000
yrblt1946-'59	0.130	13.92%	0.008	15.970	0.000
yrblt1960-'83	0.186	20.40%	0.008	21.850	0.000
yrblt1984-'92	0.216	24.14%	0.011	19.230	0.000
yrblt1993-'03	0.181	19.79%	0.013	14.410	0.000
yrsold1985-'86	0.513	67.10%	0.020	25.810	0.000
yrsold1987-'88	0.787	119.71%	0.018	42.800	0.000
yrsold1989-'90	0.749	111.57%	0.019	40.320	0.000
yrsold1991-'92	0.623	86.50%	0.018	34.570	0.000
yrsold1993-'94	0.651	91.82%	0.018	37.120	0.000
yrsold1995-'96	0.664	94.23%	0.018	37.880	0.000
yrsold1997-'98	0.798	122.19%	0.017	46.410	0.000
yrsold1999-'00	1.040	182.88%	0.017	59.830	0.000
yrsold2001-'02	1.304	268.47%	0.017	74.700	0.000
yrsold2003	1.492	344.48%	0.019	77.550	0.000
N	14294	Adjusted R-Squared	0.5594	Std. Error of the Estimate	0.33511

Omitted variables: bath1, bed<=2, yrblt<=1945, yrsold1983-'84

Hedonic Model: Impact Area

The impact model also performs well. The standard errors of the independent variables are an improvement over the models for individual towns. Like we saw with the Mansfield and Randolph impact models, the coefficients for the bedroom variables are negative.

Table 5.27

Impact					
Dependent variable equals the natural log of price					
lnprice	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	10.602	-	0.126	84.280	0.000
intersf	0.000	0.01%	0.000	1.950	0.052
lotsize	0.000	0.00%	0.000	1.540	0.125
bath1.5	0.203	22.52%	0.045	4.550	0.000
bath>=2	0.213	23.73%	0.052	4.070	0.000
bed>=4	-0.031	-3.07%	0.052	-0.600	0.551
yrblt1920-'51	0.088	9.20%	0.056	1.580	0.116
yrblt1952-60	0.285	33.02%	0.057	4.980	0.000
yrblt1961-'77	0.341	40.60%	0.059	5.800	0.000
yrblt1978-'03	0.135	14.50%	0.063	2.140	0.033
yrsold1985-'86	0.258	29.44%	0.115	2.240	0.026
yrsold1987-'88	0.846	132.92%	0.099	8.570	0.000
yrsold1989-'90	0.732	107.95%	0.097	7.570	0.000
yrsold1991-'92	0.645	90.57%	0.096	6.700	0.000
yrsold1993-'94	0.661	93.71%	0.095	6.950	0.000
yrsold1995-'96	0.626	87.07%	0.095	6.580	0.000
yrsold1997-'98	0.854	134.98%	0.095	8.960	0.000
yrsold1999-'00	1.014	175.74%	0.097	10.420	0.000
yrsold2001-'02	1.260	252.50%	0.094	13.360	0.000
yrsold2003	1.509	352.00%	0.108	14.000	0.000
N	337	Adjusted R-Squared	0.5935	Std. Error of the Estimate	0.30611

Omitted variables: bath1, bed<=3, yrblt<=1919, yrsold1983-'84

Housing Profile

The average houses for each sample are structurally similar, as was the case with the other grouped analysis. Houses in the impact sample almost exclusively have three bedrooms. The average price for a typical house in the control sample is more than in the impact sample. Descriptive statistics about the sample are in Table 5.28 and Appendix 5.10.

Table 5.28

Descriptive Statistics				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*186,889*	*89,253*	*169,628*	*76,871*
Intersf	*1,565*	*572*	*1,390*	*353*
lotsize	*18,495*	*13,890*	*13,026*	*6,009*
Bathrooms	*1.696*	*0.625*	*1.555*	*0.523*
1	**0.318**	**0.466**	0.329	0.471
1.5	0.263	0.440	0.371	0.484
2	0.167	0.373	-	-
>=2			0.300	0.459
>=2.5	0.253	0.435	-	-
Bedrooms	*3.135*	*0.730*	*3.098*	*0.561*
<=2	**0.143**	**0.351**	-	-
3	0.599	0.490	-	-
<=3	-	-	**0.828**	**0.378**
>=4	0.257	0.437	0.172	0.378
Year Built	*1956*	*35*	*1947*	*36*
<=1945	**0.247**	**0.432**	-	-
1946-'59	0.241	0.428	-	-
1960-'83	0.254	0.435	-	-
1984-'92	0.149	0.356	-	-
1993-'03	0.108	0.311	-	-
<=1919	-	-	**0.175**	**0.381**
1920-'51	-	-	0.223	0.417
1952-'60	-	-	0.193	0.395
1961-'77	-	-	0.211	0.408
1978-'03	-	-	0.199	0.400

Bold Independent variables are base case (omitted)

WILMINGTON

The Avalon Oaks 40B development is the most recent project examined in this study. Additionally, it is the only case study not included in a grouped analysis because it was built much later than the other 40B developments we review. It is a large, dense project with a lot of attention paid to design and site context. Avalon Bay developed the project but they did not file the comprehensive permit application nor did they shepherd the proposal through the approval process. Avalon Bay took over the project before construction but after the comprehensive permit was granted. The analysis period starts when Avalon Bay took control and ends in the year the development was occupied.

Impact Area

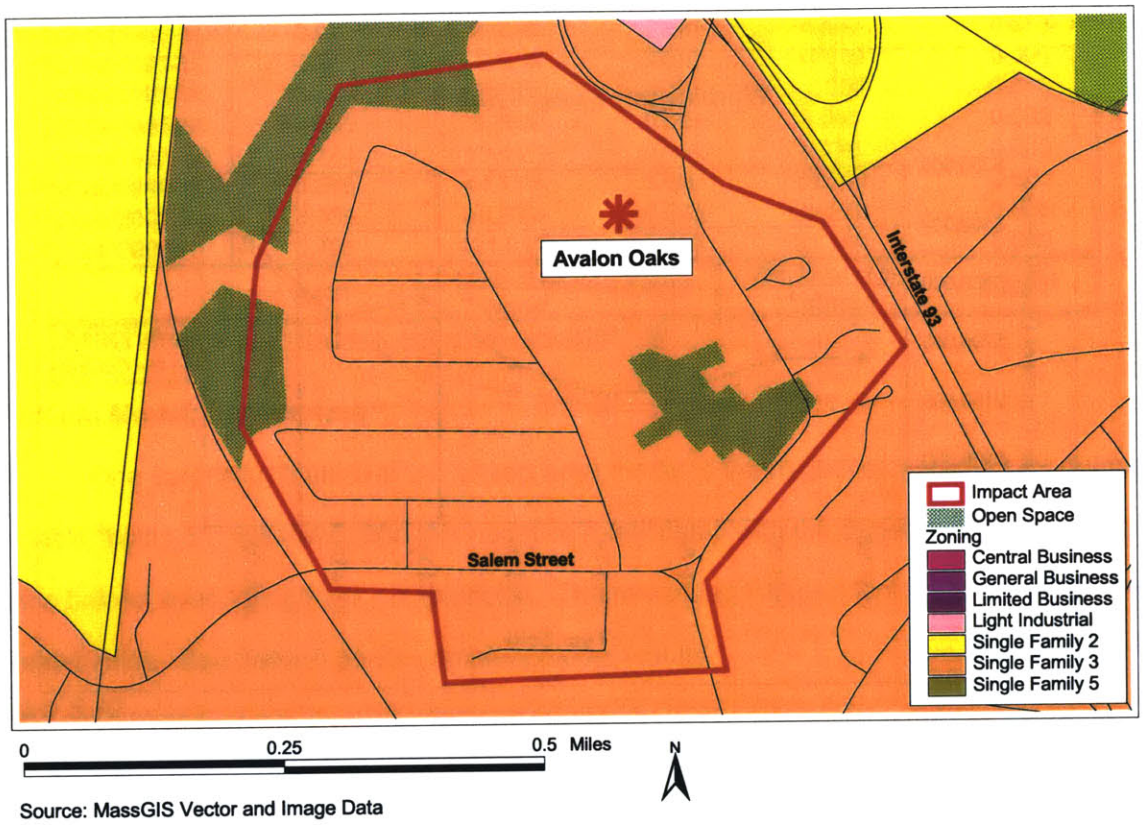
Avalon Oaks is located in the north east quadrant of the municipality, away from downtown. It is situated adjacent to an exit for Interstate Highway 93. The impact area is primarily comprised of a contiguous and clearly define residential neighborhood to the west.

Abutters to the east and single-family houses south of the elementary school are also included. We finalized the impact area after discussions with town officials in the planning and building departments.

Like the Kimball Court development in Woburn, Avalon Oaks is built directly in the backyard of many abutters. Figure 5.27 is photograph taken for the side yard of an abutter in the neighborhood to the east. The portion of Avalon Oaks that faces this neighborhood is not blaringly-offensive like in Woburn. The scope of the development is out of proportion with the surrounding land use pattern (see figure 5.25), but the site planning and context sensitive design effectively mitigates the bulk and density. The development is split into two sections. A northern portion clusters larger buildings close to I-93 and away from residents. The other section stretches smaller buildings along a curvilinear road parallel to the adjacent neighborhood.

Figures 5.25, 5-27

Figure 5.26



Source: MassGIS Vector and Image Data

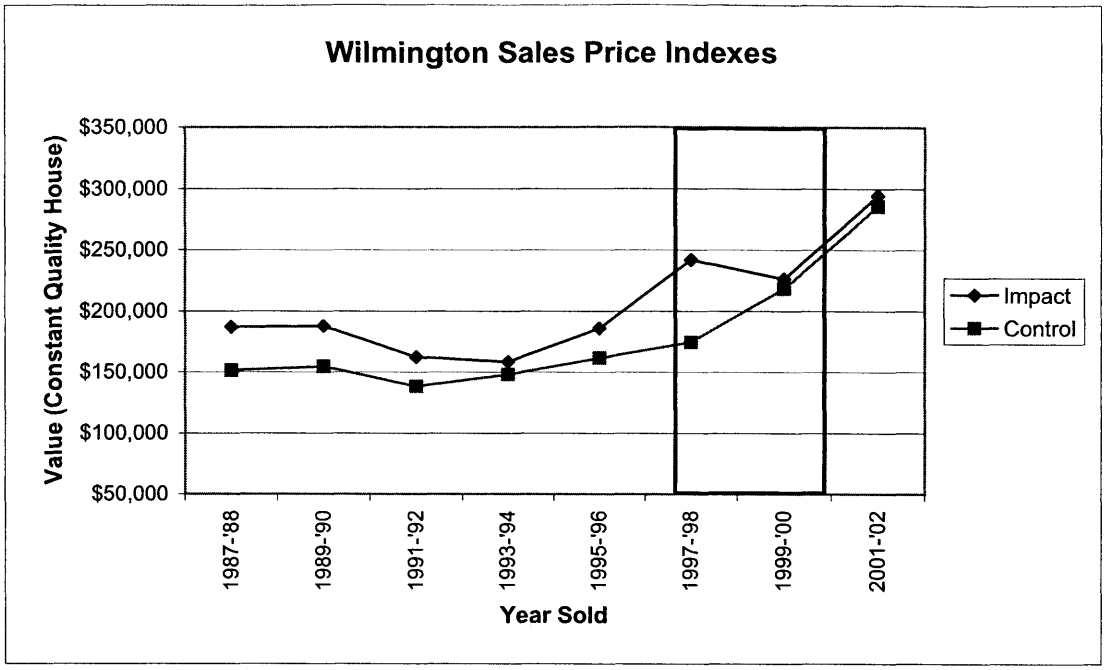
Sales Price Indexes

Price indexes for the impact area and control area follow a similar trend. There is a noticeable jump in the impact index in the beginning of the analysis period. We discount this movement for the same reason sited in the Randolph case to explain the steep drop in its impact index. The impact area index recovers too fast and too perfectly after the spike. It is likely just statistical noise from the standard errors.

Annual growth rates for the two areas are also similar. The control witnessed slightly stronger growth for the whole study and for the analysis period. The control area CAGR for the study is 9.2%, and the impact area's CAGR is 8.6%; this is a very small difference. For the analysis period annual growth rates are 6.8% and 10.5% for the impact area and control area respectively. In sum, the differences between the two comparative indexes are small, and they follow nearly identical price paths. We conclude that the introduction of the large, dense, multi-family Avalon Oaks 40B development does did not negatively affect the sales price of

single-family homes in the impact area.

Chart 5.10



Hedonic Model: Control Area

The control area model produces results similar to other models in this study. It is likely that "bath>=2.5" dummy variable is a proxy for additional "quality" features. The bedroom dummy variables have successively larger coefficients, suggesting that a greater number of bedrooms is more important than extra living space. The model output is given in Table 5.29.

Table 5.29

Control					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.409	-	0.026	438.130	0.000
intersf	0.000	0.01%	0.000	7.970	0.000
lotsize	0.000	0.00%	0.000	11.050	0.000
bath1.5	0.009	0.91%	0.015	0.620	0.538
bath2	0.039	3.94%	0.016	2.430	0.015
bath>=2.5	0.185	20.29%	0.021	8.760	0.000
bed3	0.081	8.40%	0.017	4.880	0.000
bed>=4	0.121	12.82%	0.022	5.580	0.000
yrblt1950-'64	0.145	15.60%	0.015	9.450	0.000
yrblt1965-'84	0.230	25.81%	0.018	13.030	0.000
yrblt1985-'92	0.234	26.30%	0.018	13.260	0.000
yrblt1993-'03	0.138	14.82%	0.018	7.550	0.000

Table 5.29 continued

yrsold1989-'90	0.022	2.19%	0.024	0.890	0.372
yrsold1991-'92	-0.091	-8.67%	0.023	-4.020	0.000
yrsold1993-'94	-0.022	-2.17%	0.022	-1.020	0.310
yrsold1995-'96	0.065	6.76%	0.022	3.040	0.002
yrsold1997-'98	0.144	15.44%	0.021	6.770	0.000
yrsold1999-'00	0.366	44.17%	0.022	16.940	0.000
yrsold2001-'02	0.636	88.93%	0.023	28.270	0.000
yrsold2003	0.793	121.01%	0.025	31.140	0.000
N	4431	Adjusted R-Squared	0.5015	Std. Error of the Estimate	0.32431

Omitted variables: bath1, bed<=2, yrblt<=1949, yrsold1987-'88

Hedonic Model: Impact Area

One surprising feature in the impact area model is the negative coefficient for dummy variable "bath1.5". We have seen this negative relationship with the dependent variable a few times before, even though it is not expected. The remaining independent variables relate well to sales price. See Table 5.30 for complete model results.

Table 5.30

Impact					
Dependent variable equals the natural log of price					
Independent variables	Coefficients		Std. Error	t	Significance
	Unstandardized	Standardized			
constant	11.843	-	0.145	81.880	0.000
intersf	0.000	0.00%	0.000	0.440	0.662
lotsize	0.000	0.00%	0.000	1.400	0.168
bath1.5	-0.023	-2.29%	0.071	-0.320	0.747
bath>=2	0.086	9.01%	0.083	1.030	0.306
bed>=4	0.030	3.01%	0.076	0.390	0.697
yrblt1956_'64	0.052	5.35%	0.078	0.670	0.509
yrblt1965_'72	0.183	20.08%	0.082	2.220	0.030
yrblt1973_'03	0.211	23.48%	0.075	2.830	0.007
yrsold1989-'90	0.005	0.49%	0.111	0.040	0.965
yrsold1991-'92	-0.140	-13.10%	0.115	-1.220	0.229
yrsold1993-'94	-0.165	-15.20%	0.131	-1.260	0.213
yrsold1995-'96	-0.006	-0.56%	0.109	-0.050	0.959
yrsold1997-'98	0.259	29.55%	0.127	2.040	0.046
yrsold1999-'00	0.192	21.15%	0.105	1.820	0.074
yrsold2001-'02	0.455	57.69%	0.124	3.680	0.001
yrsold2003	0.740	109.53%	0.127	5.800	0.000
N	70	Adjusted R-Squared	0.6153	Std. Error of the Estimate	0.20459

Omitted variables: bath1, bed3, yrblt<=1955, yrsold1987-'88

Housing Profile

The average house in the impact area is larger, built on a bigger lot and sells for more than the typical house in the control area. The number or bedrooms and bathrooms are very comparable though. Descriptive statistics for the samples are in Table 5.31 and Appendix 5.11.

Table 5.31

Descriptive Statistics				
	Control		Impact	
Variable	Mean	Std. Dev.	Mean	Std. Dev
Price	*201,526*	*89,119*	*225,817*	*80,090*
Intersf	*1,570*	*555*	*1,693*	*701*
Lotsize	*20,702*	*14,499*	*25,593*	*8,972*
Bathrooms	*1.66*	*0.60*	*1.63*	*0.59*
1	**0.32**	**0.47**	**0.29**	**0.46**
1.5	0.28	0.45	0.39	0.49
2	0.21	0.40	0.33	0.47
>=2.5	0.20	0.40	-	-
Bedrooms	*3.13*	*0.70*	*3.26*	*0.50*
<=2	**0.13**	**0.33**	-	-
3	0.64	0.48	**0.23**	**0.42**
>=4	0.23	0.42	0.23	0.42
Year Built	*1968*	*29*	*1958*	*34*
<=1949	**0.20**	**0.40**	-	-
1950-'64	0.23	0.42	-	-
1965-'84	0.16	0.37	-	-
1985-'92	0.19	0.39	-	-
1993-'03	0.22	0.42	-	-
<=1955	-	-	**0.27**	0.45
1956-'64	-	-	0.21	0.41
1965-'72	-	-	0.21	0.41
1973-'03	-	-	0.30	0.46

Bold Independent variables are base case (omitted)

(Endnotes)

[1] A natural log is converted to a continuous number by raising the base of the natural log 2.71828182845904 to the power the number. An example of this equation using the constant from the control area model is 2.718etc.^(11.195); or in excel use the formula =EXP(11.195).

[2] The coefficients of independent variables are standardized to be more accurate when the dependent variable is in the functional form of a natural log. Standardizing is done by taking the inverse of the natural log and converting it to a percentage. This is done in excel using the formula =(EXP(coefficient)-1) *100

[3] Pollakowski, 2004

[4] These records were not removed during the data cleaning process, but this does not guarantee that the observations are legitimate transactions. The filters we applied to the data were tolerant, erring on the side of leaving more records in the sample.

CHAPTER 6: QUALITATIVE METHODOLOGY

The following chapter outlines the qualitative methodology used to answer the question: "Do large-scale, high-density Chapter 40B multi-family rental developments negatively impact nearby single-family property values in suburban Boston communities?" We asked the question because of the widespread belief that one of the strongest motives for resident opposition to 40B projects is the fear that homes values surrounding these multi-family developments will decrease. With the qualitative analysis we planned to describe reasons for why residents and municipalities oppose Chapter 40B projects and ascertain the level and extent of community opposition to the proposed developments during the comprehensive permitting process. We also wanted to see where, if at all, the concern for property values falls in the list of reasons community residents and municipal officials had for opposing the proposed 40B development.

To accomplish this objective, we intended to measure the local context of community opposition over time beginning with the initial comprehensive permit application to the Board of Appeals through the final granting of the permit using primary sources including ZBA meeting minutes, permitting hearing records, ZBA decisions, and court documents. , instead we found an ancillary story of an arbitrary process that pitted developers and towns against one another. We use this story to narrate a much richer and nuanced story through the examination of why a controversial political and institutional 40B process sometimes fails and sometimes succeeds. We find that to some degree, 40B projects are doomed create community opposition. In some ways, 40B developments are set up for contentiousness in that the statute in effect pits developers against municipalities and vice versa.

The study evaluates the success and failures of the comprehensive permitting process of proposed Chapter 40B developments by first separating the projects into three general categories based on the comprehensive permitting process and the level of development opposition. We then perform the following examination: (1) define the community context with reference to particular community characteristics likely to influence development opposition such as income, residential growth rate, average density, and housing costs; (2) study the nature of proposed development, including characteristics such as project density, unit mix,

and affordability breakdown; (3) give a narration of the each development's comprehensive permitting process; and (4) formulate conclusions regarding the different opposition arguments, connections between the development opposition and community context, and how some systemic problems of the 40B permitting process played out.

Opposition Categories

Not all of the developments in the studied communities were opposed or highly controversial; therefore the nine projects were first categorized into three groups: "Unopposed," "Contentious," and "Highly Contentious." The "Unopposed" category of opposition consists of developments that had either little or no significant opposition during the comprehensive permitting process, and the local Zoning Board of Appeals (ZBA) approved the project in a timely manner. The "Contentious" category of opposition consists of projects that either had a prolonged and controversial comprehensive permitting process, but were ultimately approved by the ZBA, or were initially denied by the Board of Appeals, appealed to the Housing Appeals Committee (HAC), and then settled in mediation between the developer and ZBA with HAC oversight. Finally, the "Highly Contentious" category of opposition are developments that were extremely controversial during the Board of Appeals comprehensive permitting process, rejected by the local ZBA, then appealed to the Housing Appeals Committee (HAC) by the developer and ultimately settled one of three ways: (1) the HAC decision was appealed by the municipality to the Superior Court; (2) the Superior Court decision was appealed again to the Massachusetts Court of Appeals; or (3) the decision was appealed directly to the Supreme Judicial Court.[1]

Table 6.1 shows the categorization of the eleven developments in the study. As can be seen below, only two projects are in the "Unopposed" category. The "Contentious" and "Highly Contentious" categories form the basis of the community opposition study with three and four developments respectively.

Table 6.1 Opposition Categories

Unopposed	Contentious	Highly Contentious
Lexington, Franklin School	Littleton, Pond Side at Littleton	Burlington, Stone Brook Farms
Littleton, Littleton Green	Mansfield, Mansfield Depot	Norwood, Olde Derby Village
	Randolph, Liberty Place	Wilmington, Avalon Oaks
		Woburn, Kimball Court Apts

Opposition and Community Context

An assumption of this thesis is that one of the principal motivations for community opposition to Chapter 40B is that homeowners believe multi-family rental comprehensive permit projects will adversely impact their community and deflate the value of their homes. According to Pendall's study of resident opposition to new housing development described in Chapter 2, subsidized housing often provokes some of the strongest opposition from neighbors, "Established residents may imagine menacing high-rises, crime, and squalor when they hear the term *affordable housing* and generally fear that their property values will fall if any subsidized housing is built nearby."[2] [Emphasis in original] Furthermore, Pendall comments that protest to new development "can reflect racial or class antagonism, ideological commitment to homeownership, desire to protect neighborhood ambiance, and fear of decreased home value."[3]

In short, there are numerous potential reasons why people oppose new development. To better understand the motivations behind such protest, Pendall studied community opposition by examining what factors are common to controversial projects. He also looked at community characteristics such as income and residential growth rates and the level of controversy generated by proposed developments. Pendall found that projects were much more likely to generate community opposition if they were sited next to single family housing, consisted of multi-family and/or affordable housing (despite the fact that few protests specifically referred to affordable housing), were proposed in slowly growing communities, and finally that projects in higher income communities generated fewer protest than those proposed in lower income communities. This study, in part, examines the argument that community characteristics can often help explain the level of opposition to new housing development in a given community.

Study Focus

Upon a careful examination of the permitting processes, we found a structure which often pits developers and towns against one another. The 40B process can be conceptualized in terms of three stages: "Stage 1-Introduction" – the developer introduces a project to the town; "Stage 2-Debate" – the permitting process negotiations and bargaining between the developer and municipality; "Stage 3-Resoultion" – final permit decision. This three stage process was formulated with respect to the highly contentious developments. We examine the evolution

of the 40B process from highly contentious, contentious, to unopposed developments to see how the process can change over time as a result of bargaining, negotiation, and proactive communities.

The study begins with the developments that fall in the "Highly Contentious" and "Contentious" opposition categories. The examination of the comprehensive permitting process relied on the following primary sources: comprehensive permit applications; correspondence to the local zoning board of appeals from residents, local businesses, local boards, institutional actors such as Fair Housing Commissions, School Committee representatives, and affordable housing advocates with regard to the proposed developments; minutes of town and zoning board meetings; ZBA decisions; HAC decisions and correspondence; Superior Court, Massachusetts Appeals Court and finally Supreme Judicial Court decisions.

Secondary sources of local media coverage throughout the permitting approval, design, development, and post-development periods are also examined. Anecdotal information regarding the permitting process was also obtained through informal discussions with key stakeholders such as local ZBA members and administrators, town planners, and other municipal employees.

The study also examines community characteristics that are likely to influence opposition to new housing development. These characteristics include median household income, growth (or decline) in median income, population growth (or decline), ratios of renter- and owner-occupied housing units, current median house values, growth in house values, median rents, racial diversity, educational attainment, and the ratio of single family homes with and without mortgages. The amount of development opposition is examined in relation to the above community characteristics.

Conclusions are drawn as to why the permitting process and the final development plan for the projects in the highly contentious category are fundamentally different from those in the contentious category of opposition. These cases are used to describe what problems inherent in the 40B statute contribute to the contentiousness of a 40B proposal. The controversial case studies are also shown as examples of what not to do in a permitting process, for both developers and municipalities. A highly contentious process causes both parties to be worse off in the end with a long costly process and little incorporation of each other's wants and

needs in the final product.

Franklin School and Littleton Green are the two projects in the "unopposed" category. These developments were granted zoning override permits in a timely manner, and the analysis of their permitting process takes a different approach. Instead of just examining the reasons why residents and officials might have opposed the developments, we also examine why these projects did *not* provoke significant opposition. These two projects have considerably different characteristics from the developments in the other two opposition categories and it is just as important to study why they were not contentious in addition to looking at some of the concerns people did raise regarding the projects. For these projects, we give a brief description of the community context, the development scenario, and some, if any, issues raised by the Board of Appeals and community residents during the comprehensive permitting process. The relationship between the level of community opposition and relevant characteristics of the communities is also examined.

Finally, by using these two cases as examples of how the 40B process can work to benefit both developers and municipalities, we are able to draw conclusions as to what developers and towns can do to create a success process and therefore a successful development incorporating the wants and needs of both parties.

(Endnotes)

[1] For an organizational chart showing the structure of the Massachusetts court system, please see the Appendix 6.1.

[2] Pendall, pg. 114.

[3] Pendall, pg. 115.

CHAPTER 7: QUALITATIVE ANALYSIS

The following chapter describes the qualitative analysis of this thesis which was initially undertaken to investigate the assumption that development opposition is motivated by property devaluation. The presumption was that there would be specific references to concerns regarding property values in the primary sources for the studied developments, but the examination of primary source material found little evidence of opposition stemming from property value concerns. One reason for this absence is the fact that the reasons for opposition that have weight and bearing on the comprehensive permit decision do not allow for property value concerns. Fear of property devaluation is not a tractable issue to use as the basis for the denial of a comprehensive permit. A local board of appeals may only deny a comprehensive permit is they can prove that the decision is "reasonable and consistent with local needs," and demonstrate that the development will cause health, safety, environmental effects that outweigh the need for low and moderate income housing.[1] Therefore, it is not surprising that we did not find evidence in the primary sources of this fear even if it is tangible to residents and motivates opposition.

What we did find upon a careful examination of the permitting processes was a structure which often pits developers and towns against one another. The 40B process can be conceptualized in terms of three stages: "Stage 1-Introduction" – the developer introduces a project to the town; "Stage 2-Debate" – the permitting process negotiations and bargaining between the developer and municipality; "Stage 3-Resoultion" – final permit decision. This three stage process was formulated with respect to the highly contentious developments.

We found that highly contentious projects often occur when communities are reactive towards new development and developers are able to come in and propose whatever project they choose. Stage 2 takes place with virtually no bargaining between developers and towns and an eventual permit denial from the town. This denial leads to a long, expensive stage 3, incentivizing developers to maximize project density to compensate for extra costs; and leaving towns with little leverage once the court renders the final permit decision.

The contentious developments are evidence of how the three stage process has been reframed over time. With the contentious projects, developers and towns began reframing

how to proceed with the permitting process by learning that they could both have a better end result if they negotiate and bargain during stage 2. The municipality ends up making the final permit decision in stage 3 as opposed to the developer appealing the permit through the higher stakes court system.

Finally, when towns are proactive and both the towns and developers make concerted efforts to negotiate in good faith, the end result is often little development opposition and projects which are less controversial and incorporate the needs and wants of both parties. Proactive communities are able to completely re-frame the context in which the developments receive comprehensive permits. They can accomplish this by creating an alternative model for new development, instead of having the developer come into the town and propose a project in stage 1; they can turn the tables and actively seek out appropriate sites, uses for the site, and developers.

. The first section of the chapter examines four highly contentious developments in Burlington, Norwood, Wilmington, and Woburn. The developers and municipalities in these four cases were strongly at odds and the permitting processes were long and very heated. The second section examines three contentious developments in Littleton, Mansfield, and Randolph. The analysis of these three projects takes into consideration the findings from in the previous section and describes how the negotiation and mediation between the developers and towns resulted in a relatively more amicable solution for both parties. Finally, the chapter ends with two unopposed developments in Lexington and Littleton. Particular attention is paid to what made these two projects different from the other case studies so that no significant opposition was raised during the permitting process.

HIGHLY CONTENTIOUS DEVELOPMENTS

This section focuses on the highly contentious developments in the study defined as projects that were extremely controversial during the Board of Appeals comprehensive permitting process, rejected by the local ZBA, then appealed to the Housing Appeals Committee (HAC) by the developer and ultimately settled one of three ways: (1) the HAC decision was appealed by the municipality to the Superior Court; (2) the Superior Court decision was appealed again to the Massachusetts Court of Appeals; or (3) the decision was appealed directly to the Supreme

Judicial Court. The developments that make up this category of opposition are Stone Brook Farms in Burlington, Olde Derby Village in Norwood, Avalon Oaks in Wilmington, and Kimball Court Apartments in Woburn.

There is a great deal of similarity regarding the many stated reasons for the community opposition of these four developments. Water shortages, sewer connections, project density, and traffic were all common outcries by residents and municipal officials during the comprehensive permitting process. However, quotes from hearings, letters, petitions, and local newspaper articles often tell another story of opposition. They infer that much of the resident opposition was with respect to the ostensible "impact of the development" on the community. Development "impact" was used repeatedly during the permit hearings by residents and municipal officials, in this section and the next section. However, impact is defined as the effect of one thing on another; it is neither a positive nor negative statement. By just saying that the development could impact their area, the users of the term are allowed to take the easy way out instead of actually defining or clarifying their true concerns.

In addition to there being a number of commonly stated reasons for opposing the 40B developments in this section, there was a great deal of antagonism between the developers and the towns during the permitting hearings. It often seemed that the two parties were set against one another from the beginning and the projects were doomed to be extremely contentious from the start. In many instances, the towns felt that Chapter 40B was taking away their power to control land use in their own community. All four projects experienced a short stage 2 of the three stage process because very little bargaining or negotiation occurred and the municipalities denied the comprehensive permits relatively quickly. In terms of stage 3, the developers did not hesitate to pursue litigation, confidant that they would ultimately receive permit approval from the HAC or the courts. In the end, this process left the towns with large-scale, dense multi-family developments that they had little to no say in, and left the developers with a tremendously costly and lengthy permitting process; in one case, contributing to the developer's bankruptcy.

STONE BROOK FARMS, BURLINGTON

Stone Brook Farms in Burlington was one of the most contentious and strongly opposed

Chapter 40B developments in the study. Ultimately permitted in 1987 under the name of Pheasant Ridge, the Burlington Board of Appeals issued a denial of the comprehensive permit in December of 1985. At the time, the ZBA stated that the developer did not have standing to receive a comprehensive permit because he did not hold title to the property. Meanwhile, two months earlier the town had ordered a taking of the property in an effort to stop the development. The developer appealed the decision to the HAC. The HAC ruled in favor of the developer and ordered the granting of a permit. Burlington then appealed the decision to the Superior Court but the Supreme Judicial Court was granted direct appellate review, where the comprehensive permit was decisively granted.

The town found numerous reasons to oppose the Stone Brook Farms development in addition to the claim that the developer did not hold title to the property. The Board of Appeals and town residents strongly objected to project because they felt that it would change the character of the neighborhood and its development would go against the town's current land use pattern. The town had previously imposed building and sewer connection moratoriums in an effort to halt significant recent growth. However, the need for these moratoriums to stop growth is somewhat perplexing in that Burlington actually lost population during the 1980s. Both residents and the town also opposed the development on the grounds of density and project size. Stone Brook Farms consists of over 200 units, a significant departure from the much smaller, primarily single-family housing development the town was used to.

Finally, it is important to note that Stone Brook Farms was one of two comprehensive permit projects proposed at the same time in Burlington, they were also the first 40B projects proposed in the town. Burlington at the time was not a 40B-savvy town with the ability to really know how to work the statute to their advantage.

Community Context

Burlington is a suburban industrial town located 13 miles northwest of Boston. For most of its history, Burlington was an agricultural community, but the nature of the community changed considerably after the construction of Route 128. The highway brought about significant expansion of the town, including large residential and commercial retail development booms. Today, Burlington is still a relatively low density community, with approximately 23,000 residents and a density 1.1 housing units per acre. It was one of the few towns in the state to

experience population loss in recent years, with a nearly 2 percent drop in population between 1990 and 2000, and a 2.6 percent decrease since 1980. Burlington is more ethnically diverse than many of Boston's suburbs with a population which was less than 87 percent white in 2000. It is largely made up of homeowners with 80 percent of its housing units owner-occupied. The town had a notably low vacancy rate in 2000, 1.8 percent, and currently is experiencing relatively high house prices with the 2003 median house price of $360,000, a nearly 115 percent increase over the last decade. Rental housing in Burlington is also expensive; the town's median gross rent in 2000 was $1,061 per month, the second highest in the study.[2]

Nature of Proposed Development

Completed in 1988, Stone Brook Farms consists of 203 units of all one and two bedroom apartments, 51 (25 percent of total) of which are affordable to families earning at or less than 50 percent of the area median income. A minimum of 20 percent of the units are to remain affordable in perpetuity. The $23 million project was developed by the Boston Land Company and encompasses eight buildings surrounded on three sides by single-family housing. The project site is very close to the center of town and less than a mile north of Interstate 95/128. Stone Brook Farms' neighborhood and site context are shown in Figures 7.1 through 7.4.

Opposition Overview

Prior to the proposal for a comprehensive permit at the Stone Brook Farms site, the original property owner appealed to the ZBA for permission to develop a single-family subdivision on the property, the Board of Appeals rejected the proposal. A short time later, the property owner executed a purchase and sale agreement with Boston Land Company and the Pheasant Ridge comprehensive permit application was submitted to the ZBA.

While the application for a comprehensive permit for Stone Brook Farms/Pheasant Ridge was not submitted until July of 1985, and the permit hearings did not occur until the Summer and Fall of 1985, the Burlington ZBA received numerous letters in opposition to the project from residents throughout the Winter and Spring of 1985 after the developer announced information regarding the proposed development in February of 1985. One such letter commented that "more housing in this area would not only be detrimental to the current water and sewerage needs of the town but would also pose dangers in relation to access for the fire and police departments." Another resident questioned: "What right has the State to

Figures 7.1 - 7.4 Stone Brook Farms Aerial and Site Photographs

give a Builder the right to build in a Town without reviewing all the facts and stipulations?" Additionally, people felt that Burlington residents were already suffering from problems associated with new development: "Our Town is plagued with traffic constantly and the area that is being considered is already a disaster area. Isn't it time that something is done to help the residents in town!!" [Emphasis in original] Finally, people also protested the changing of the town from a more rural quiet community into a fast-growing suburb of Boston: "The reason that most of us moved to Burlington was because of its country serenity and beauty. This is fast disappearing." It seems that people felt Burlington was not the community it once was, the place they moved to, the place they would live, and people were upset with the prospect of any more change.

The Town Administrator, speaking for the Selectmen, wrote a memorandum to the Board of Appeals regarding the Pheasant Ridge proposal in August of 1985. The memo address a number of issues with the proposed development including major concerns about drainage plans, sewer problems, an inadequate traffic analysis submitted by the development team, and in light of recent water shortages, questioned the ability of the town to provide necessary water for the town in general and the proposed development in particular.

The Planning Board also commented about the project to the ZBA in August. The Planning Board voted unanimously to recommend that the Board of Appeals deny the comprehensive permit for a number of stated reasons. Some of the reasons were that the Planning Board felt the selected site is inappropriate and unacceptable, the proposed "development will dramatically change the most important recreational open space in Burlington," and that multi-family development on the site "is a major departure from the overall land use pattern that the Town has used for more than 20 years." The Planning Board vehemently opposed the proposed development and concluded their memorandum with the following statement:

> Landscape screening and buffering are inadequate to protect existing adjacent homes. Parking lot areas would be located adjacent to existing homes and the area available for landscaping will be inadequate for screening of car lights at night. Because of the topography of the proposed site, the proposed development will have a major visual impact on the adjacent homes. The apartment buildings will be visible from adjacent homes because of the rising hillside on which the buildings will be placed. The proposed development will change the character and amenity of the adjacent residential area.[3]

In a letter from the Board of Health to the ZBA regarding Pheasant Ridge on September 25, 1985, the Board stated that they had also voted unanimously to recommend the denial of the comprehensive permit on the basis of a multitude of concerns with respect to the potentially damaging impact of the development. The Board noted the growing water demand in the town and fears of potential water shortages stating it was their duty to ensure not only a safe, but an adequate supply of drinking water for town residents. They also wrote about concerns stemming from recent growth in the community which has "transformed Burlington from a rural community into a significantly development community." In light of this, the Board of Health raised the fact that building and sewer connection moratoriums had recently been enacted,[4] "it is quite reasonable that Burlington pause in order to correct some serious growth problems.

The approval [of the comprehensive permit], at this time, would certainly go against the 'good sense' and purpose of Burlington's moratorium."

Additionally, the Board of Health letter highlighted discussions the Board undertook while debating the issuance of the comprehensive permit for Pheasant Ridge. Of particular relevance, was the length to which the Board of Health saw the need to comment on issues not necessary in line with their *raison d'être*:

> The Board also discussed several other issues concerning this proposed development which we decided to bring to your attention. One concern is the proposed location of this complex. Because this parcel of land is in close proximity to the center of town and town offices, as well as social and recreational facilities, it would appear that this land would better serve the town as a recreation and/or social area. Unfortunately, due to rapid appreciation of real estate and the need to acquire land to protect public wells, the town's ability to purchase such parcels of land has been severely limited.

The above comment is somewhat confusing in that it would like to purchase the property, but cannot because of the rapid appreciation of property values in the town. However, rapid appreciation of real estate also means that the town is getting more expensive, inadvertently implying that there is likely a need for affordable housing. Moreover, the quote also discusses how close the development site is to the center of town, social, and recreational facilities, and therefore the site should be a recreation or social area. However, the site's central location could also imply that additional housing would suit this neighborhood and the residents of the development would be conveniently located to necessary services.

In October of 1985, while the comprehensive permit was being debated with the Board of Appeals, the town issued an Order of Taking of the Pheasant Ridge site. The town stated the taking was for the purpose of parks, recreation, and the construction of moderate income housing and appropriated $1,130,000 to pay for the land.

The Board of Appeals issued their decision on the Pheasant Ridge application for a comprehensive permit on December 20, 1985. The ZBA found that the development team "failed to convince this Board that a comprehensive permit should be issued." They cited the Board of Selectmen, Sewer and Water Commission, Planning Board, Board of Health, Conservation Commission, Public Works Department, Historian, Town Administrator, Fire Department, Police Department, Planning Administrator, Town Engineer, Building Inspector, and Environmental Engineer as all opposing the project. Additionally, they stated the applicant

had no standing regarding the property because they did not hold title to the land. The ZBA made further comments regarding their perceived inadequacy of the Pheasant Ridge comprehensive permit application. They did not believe that the application provided sufficient data as to the number of low and moderate income housing units located in the town.

The Board of Appeals felt that the site could only support approximately 20 single-family homes under current zoning (single-family residential), compared to the 203 multi-family rental units requested by developer. The ZBA actually proposed in the decision that the development switch to single-family homeownership with a portion of affordable units. Additionally, the Board recalculated the amount of housing the site could support if it were to be re-zoned for apartment use; their conclusion was that the site could hold no more than 84 units. According to the ZBA, during the hearing process they asked the developer to substantially reduce the proposed number of units, but the applicant was not willing to reduce the units to less than 200.

The ZBA decision also reiterated a number of additional concerns the town had regarding the proposed development. Worry about the ability of the Burlington's ability to support the water, sewage, and other municipal demands of the development were at the forefront. As was previously stated, the town had issued a moratorium on sewer connections in December of 1984, as did the neighboring town of Woburn. The Mayor of Woburn actually came to the Pheasant Ridge hearings "to stress the severity of the public health impact upon Woburn of the addition of any sewage into the overburdened systems." In response to these assertions, the Board stated: "For reasons of municipal sewerage capacity alone, this Board must therefore deny the application."

Using almost identical language as the Planning Board had in their correspondence, the Board of Appeals concluded that the site is inappropriate for multi-family housing because it is such an "intense use" significantly and this outweighed the local and regional need for low- and moderate-income housing. The ZBA felt that this project was too large and located in the wrong part of town; it conflicted with the nearby single-family area, and was a radical departure from the town's land use pattern. They also commented that the developer was not willing to reduce the size of the development or alter the Pheasant Ridge plan to be more complementary to the surrounding uses. They found "that the proposed development will have

a major visual impact on the adjacent homes which will change the character and amenity of the adjacent residential area." Again, using virtually identical language as the Planning Board, the Board of Appeals was sure that the Pheasant Ridge development would have an adverse impact on the surrounding neighborhood.

The HAC decided in favor of granting the comprehensive permit for the Pheasant Ridge development. The Burlington ZBA appealed the HAC decision to the Superior Court. The case began a hearing with the Superior Court in October of 1985; however, the Supreme Judicial Court (SJC) granted a request for direct appellate review and bypassed the standard appeals process.

The SJC issued their decision in April 1987 after hearing arguments the prior January. The SJC affirmed the HAC's judgment that the town's effort to take the property was in bad faith and was to be voided. The SJC also declared that the comprehensive permit was constructively granted by the HAC and still stands.

The opposition to the project started on day one: "The plaintiffs' announcement of the proposed development in February, 1985, had produced immediate, substantial, town-wide opposition." Following the announcement of the project, the Board of Appeals held hearings on the comprehensive permit application throughout the summer and fall despite the developer's attempts at concluding the proceedings in August. However, the board delayed the decision at the same time the town selectmen were adopting the order of taking. When the ZBA rejected the comprehensive permit, they relied on the taking as one of the many reasons for denial of the permit.

One of the primary issues debated by the SJC was the lawfulness of the town's taking of the property in light of Boston Land Company's assertion that the taking was made in bad faith. The SJC affirmed that the:

> motion judge was correct in declaring that the purported taking of the plaintiffs' property was unlawful and void. In reaching this conclusion we hold that a municipal land taking, proper on its face, may be invalid because it was undertaken in bad faith... Clearly, taking land solely to block G.L.c. 40B, § 21, low or moderate income housing would be improper. To have taken the site involved in this case to prevent the impact of the proposed development on the water, sewer, traffic, and other problems of the town would not have action in good faith. The town was not barring other residential development on these grounds. There was another larger development for which a comprehensive permit was sought at about the same time, and the town did not try to take that property.

> The only valid justification, in the circumstances, for the taking would be that the town truly intended that the land should be used for the purposes for which it was taken. The record is clear that in recent years the town had studied its needs for parks and recreation and that neither the Center Street site nor any parcel in the general vicinity of that site had been considered for acquisition for park or recreational uses. There is no indication in the record that before the plaintiffs' proposal was announced any town board was seeking to provide low and moderate income housing on or near the site.

According to the SJC, the town never debated taking the property until the development proposal for Pheasant Ridge was announced. The town had no prior interest in the site or its neighborhood. This implies bad faith on the part of the town in their effort to take the property.

Additionally, according to the developer, "at least two selectmen made statements to the effect that they would take any action necessary to stop the development, that all the selectmen acquiesced in those statements and efforts to block the development." The town was using the taking as an excuse to stop the development from happening and many of the other reasons for opposition were likely just more excuses to block the project.

Also, similar to the Kimball Court Apartments permitting process in Woburn described later in this section, the Burlington ZBA was also accused of stalling the decision on the comprehensive permit for Pheasant Ridge. The Chapter 40B regulations have stringent time limits with respect to how long the ZBA has to publicize and hold hearings on a permit application (within 30 days of receipt of application) as well as how long they have to make a decision (within 40 days of final hearing) or else the application will be deemed to have been allowed.

In a *Boston Globe* article on the SJC's decision on the Pheasant Ridge comprehensive permit, it was understood that the decision would have a major impact on other pending Chapter 40B cases as well as the climate for developing affordable housing across the state. The article remarks that the court ruling is "expected to adversely affect all Massachusetts communities trying to block construction of affordable housing."[5] According to the article, the SJC ruled that the attempted taking by the town was strictly an attempt to stop the Pheasant Ridge development. According to the developer's attorney, the SJC ruling was an important victory for affordable housing. Previously, the courts tended to side with towns when it came

to eminent domain takings for public purposes. However, "in this case, the Supreme Judicial Court decided that the taking was to stop something else from going on. The depositions and affidavits, including statements by the selectmen, showed that the taking was to stop the affordable housing project."[6] The SJC determined that taking land to prevent affordable housing development was not going to be allowed by the courts in Massachusetts.

The week following to SJC decision, there was an editorial in *The Boston Globe* regarding the ruling. The editorial discussed the importance of the SJC decision, observing that Burlington's defeat offered a lesson for communities eager to fight Chapter 40B developments in that they were not likely to find a court sympathetic to their side. The editorial commented on resident concerns regarding the development: "Opposition surfaced quickly, prompted by legitimate concerns – sewerage problems and density worries – and a good deal of pigheaded provincialism."[7] *The Globe* felt that resident opposition was colored by their inward focus and either inability or lack of desire to recognize the larger need for affordable housing in the community and region. The editorial was also critical of the town's methods for dealing with the project when it discussed the town's decision to take the site by eminent domain instead of negotiating with the developer to find a better solution for the project's density and site plan. It was almost ridiculous that after the SJC decision the Selectmen issued a statement that they "will invite discussions with the developer to reach a mutually acceptable conclusion to this dispute."[8] However, this attempt was too little to late, the developer's attorney was adamant that construction would begin as soon as possible. As a result of their stubbornness and refusal to cooperate at an earlier point in time, something the developer was initially willing to do, "Burlington guaranteed that this development would be built in a way it did not want."[9]

Opposition Conclusions

The end result of the comprehensive permitting process for the vehemently opposed Stone Brook Farms was a two-year expensive and heated legal battle between the Boston Land Company and Burlington. By issuing an order of taking, which the courts decided was in bad faith, Burlington guaranteed that it would have no control over the process, be completely at the mercy of the developer, and ended up with a project that they were entirely against.

As evidenced by the above discussion, there were numerous types and reasons for opposition to the Pheasant Ridge development in Burlington from local municipal officials and

town residents through letters, speaking at public meetings, and even legal action. The great lengths to which Burlington went in order to stop Stone Brook Farms from moving forward exceeds the community protest in all of the other studied cases. The order of taking, where Burlington attempted to purchase the parcel of land on which Boston Land Company had already executed a purchase and sale agreement, was almost outrageous. The HAC and SJC viewed the taking as an effort of bad faith on the part of Burlington. It is obvious by comments made in the ZBA, HAC, and SJC decisions, that the town used the taking solely as an effort to halt the development. They were desperate and took any actions necessary to stop Stone Brook Farms from happening.

One of most common reasons for opposition was the impact of the development on the character of the neighborhood. According to resident opposition, the town was changing quickly as a result of suburban development, and they were upset at the prospect of further change. Furthermore, despite the fact that property values were not specifically cited as a concern because of the development, it has been shown that property values and community character are intimately connected. When one buys a home, they are not just buying the housing; they are also buying into the community. The value of the home is directly tied to the value of the community. Therefore, if it is perceived that the community is changing in a negative way, it is likely that property values could be adversely impacted.

Additional reasons for opposition were the impact of the development on the town's already overburdened sewer and water systems, the fact that the development would change the already established land use pattern and plan for the site, and the proposed density of the development. In terms of density, the development, with a density of nearly 14 units per acre was more than ten times higher than the town average density in 2000 of 1.1 units per acre.

The opposition in relation to other community characteristics is also important to consider. Residents are more likely to oppose developments in slow-growing communities, when the development is proposed in single-family neighborhoods and on a site where previous development scenarios were proposed and denied. Stone Brook Farms conforms to all these situations - it is surrounded on three sides by single-family homes, Burlington's population was actually shrinking at the time, and another development had been proposed by the site owner and denied by the ZBA prior to the Pheasant Ridge proposal.

OLDE DERBY VILLAGE, NORWOOD

The Olde Derby Village development was also one of the most highly contested projects in the study. Originally permitted by the HAC in 1974 after a 1971 denial from the Norwood Board of Appeals, and then appealed to the state Superior Court where the comprehensive permit was finally granted in 1975. However, this was not the end of the process, Olde Derby Village was still held up for ten more years because of further debates between the developer and the town regarding such controversies as the project's density, the proposed site plan, and buffering between the development and the surrounding neighborhood.

It is important to note that Olde Derby Village was proposed just two years after the Chapter 40B statute was enacted. Similar to Burlington, it is likely that this was if not the first, one of the first 40B developments Norwood had seen. By holding up the project for more than a decade, Norwood was able to gain some 40B knowledge and savvy and halt the development for as long as possible. Despite the fact that the final comprehensive permit decision came from the Superior Court, Norwood was still able to really negotiate for a more amenable project including a significant reduction in the size and scope of the project, a very different result compared to Burlington. However, considering Norwood's primary goal was to just keep Olde Derby Village from being developed, the town succeeded only in prolonging the inevitable.

Again, similar to Burlington, much of the opposition to the project was an effort to just stop the project from happening. Even when the final agreement between the town and developer was reached, to quote the Selectman Chairman, the agreement was described as "the best we can do ... we're not jumping up and down for joy."[10] Norwood's State Representative seconded this with the comment that the negotiation's first goal was to stop the project altogether, so although final agreed upon project was a substantial improvement, "for the neighbors it's still a bitter pill to swallow."[11] However, it is important to note that Norwood was able to negotiate for a more amenable project as opposed to the Burlington situation where, after the SJC made its decision, the developer was able to move much more quickly through the development process without any incorporation of the town's wishes.

Community Context

The Town of Norwood, 14 miles south of Boston, is an economically diverse community consisting of manufacturing, suburban-residential, and retail trade centers. With a population of nearly 30,000 residents, it has one of the highest densities in the study with 1.78 housing units per acre. While much of suburban Boston is growing rapidly, Norwood is one of the few towns in the metropolitan area to experience a decline in population; from 1980 to 2000, the population decreased by 3.8 percent. Additionally, it has a comparatively low fraction of affordable housing, 5.4 percent of the total housing stock, the lowest percentages of the communities in the study.

The town has the highest ratio of renter-occupied housing in the study, 43 percent of the total housing stock. Interestingly, Norwood also has the largest percentage of homeowners without a mortgage in the study, 36 percent. Norwood's 2003 median single-family house price was $348,500. While this is close to the median of the studied communities, Norwood's house prices rose by only 111 percent in the last decade, the slowest growth rate in the study. The 2000 median gross rent in Norwood was $895, also close to the median of the studied communities. [12]

Nature of Proposed Development

Olde Derby Village, previously referred to as Countryside Village and Wilson Street, consists of 139 units, 35 of which (25 percent) are affordable. The project was completed in 1986 and financed through MassHousing's State Housing Assistance for Rental Production (SHARP) Program, a program that provides permanent financing to reduce the cost of interest payments and rental subsidies in exchange for a set aside of no less than 25 percent of all units for participants of state and federal rental assistance programs. The development is made up of six buildings and is centrally located within Norwood, close to amenities such as schools, churches, playgrounds, and the public library. The project is relatively dense with 15.4 units per acre on a nine acre site.

The final site plan was the product of negotiations between Wilson Street Associates and the officials of the Town of Norwood, including a reduction of scope of the project pertaining to the number of proposed buildings and units. Figures 7.5 through 7.8 show the neighborhood and site context for Olde Derby Village.

Figures 7.5 - 7.8 Olde Derby Village Aerial and Site Photographs

Opposition Overview

The Olde Derby Village developer, Wilson Street Trust, originally filed an application with the Norwood ZBA for a comprehensive permit to construct 150 units of mixed income housing. The ZBA denied the application in November of 1971. In their decision, the Board claimed a number of concerns regarding the proposed development including there was not proper ownership of the site, the developer was not a financially viable, properly organized entity, the submitted plans were inaccurate, vague, and not sufficiently complete to enable the Board of Appeals to make a valid judgment, the proposed development would cause health and safety hazards, and adversely impact the local school system.

The HAC decision regarding the comprehensive permit for Olde Derby Village was filed on February 13, 1974. The decision addressed virtually every issue raised by the Norwood ZBA in their denial of the permit. One claim the Board of Appeals made was that the applicant did not have proper ownership of property and therefore no standing to apply for comprehensive permit, however, in fact, the developer had completed an option to purchase under a purchase and sale agreement. The ZBA also claimed that the applicant was not a properly organized entity, financially viable, and had no experience, which were all incorrect and ignored that the applicant was a longstanding reputable development entity that had organized a single purpose entity for the purposes of developing the proposed project.

The HAC decision also weighed the ZBA's denial on the basis of consistency with local needs. The HAC found that the denial was not consistent with local needs. Norwood had not met the 10 percent affordable housing stock requirement; at the time there was nearly 10,000 housing units in the town and only 233 were defined as affordable. Additionally, the Norwood Housing Authority had approximately 375 households on their waiting list. To quote the housing authority in a letter to Wilson Street Trust: "It is apparent that we have an immediate need for additional rental units, and that an emergency exists in that respect. It would be of benefit to the residents of this town, if you could provide 25% of your proposed new housing development to alleviate this problem." Obviously, this letter was in support of the proposed development and contradicted the Board of Appeals decision.

The Norwood ZBA also claimed to deny the permit for Olde Derby Village on the basis that it would create health or safety hazards, particularly resulting from traffic and a controversial drainage ditch. However, according to the HAC, health and safety factors must be weighed in relation to the local and regional need for affordable housing. Additionally, the HAC found that neither the traffic or drainage ditch would pose serious or irremediable health and safety risks.

The board also "argued vigorously" that the Norwood school system would be significantly adversely affected by the development and in that would risk the health and safety of the town. However, the HAC refuted the argument: "Apart from the fact, conceded in the Appellee's brief, that Norwood does not face a collapse of its school system, we would still be faced with Norwood's obligation, under the law, to provide schooling for all its eligible

children... We rule, therefore, that the impact on the school system is not a ground, under the statute, to support a denial of a comprehensive permit as 'consistent with local needs."

The ZBA also attempted to deny the comprehensive permit for Olde Derby Village based on their requirements for "Group Housing Restrictions." However, according to the HAC decision, "this is precisely the type of local restriction at which Chapter 774 is directed. Compliance with such a requirement would effectively kill this development." The project was designed by a reputable, well-respected architectural firm and was approved by MHFA, and "represents what Chapter 774 envisions in fulfilling housing need while providing the best in land use planning and aesthetic site design."

There were many additional issues raised by the town as support for their denial of the comprehensive permit. One was the Planning Board's claim that the plan did not adhere to subdivision regulations such as road width, sidewalks, and granite curbing. However, the proposed project was *not* a subdivision so the argument is totally irrelevant. Another issue was the submitted plans and specifications were not detailed enough, but detailed plans are not required during the comprehensive permitting phase and the ZBA is supposed to make their decision based on preliminary plans. Yet another controversy was the common concern regarding the town's water supply. According to the Board of Appeals, "The proposed construction will aggravate a serious water problem now existing at the proposed building site such that is may endanger the health and safety of the occupants of the proposed housing and the residents of the Town of Norwood." However, this claim of a reduced water supply harming the health and safety of Norwood residents was proved erroneous in numerous studies and testimony presented to the HAC.

The HAC's findings, in short, were that "the decision of the Board of Appeals of the Town of Norwood was unreasonable and not consistent with local needs" and directed the immediate issuance of a comprehensive permit to Wilson Street Trust. However, the SJC did impose twelve conditions to the comprehensive permit including that the construction of the project was to comply with Norwood's building code and that the town had to approve detailed construction plans and specifications. It is important to note here that these two conditions are what allowed the town to hold up construction for ten more years.

The Town of Norwood appealed the HAC decision to the state Superior Court. The

Superior Court issued a judgment on July 22, 1975 affirming the decision of the HAC on the application of Wilson Street Trust for the issuance of the comprehensive permit.

The development was completely stalled for the next nine years. However, in the Summer and Fall of 1984 a new effort seemed to be made to get the development moving forward. In August of 1984 the developer wrote a letter to the Norwood building inspector requesting the issuance of the building permit stating that the Board of Appeals had approved and signed off on the final plans and specifications.

Norwood officials refused to issue a building permit and requested certification from the HAC that the most current plans and concept for the project "are the same as which was approved in their decision dated February 13, 1974" claiming that the decision the HAC made in 1974 was based on a different set of plans and that the "nature of the project (as well as the specific plans) has shifted from the original concept." Norwood officials felt that if the concept was substantially different from the 1974 plans, it could possibly warrant a new review and new a comprehensive permit altogether. The Town Counsel even went so far as to threaten legal action: "In my opinion, the Norwood Board of Appeals is entitled to protection from any defect in this regard through a certification by the Housing Appeals Committee. In my opinion, the Board is entitled to this to the point of litigation." The town also felt that they should not have to rely on a decision made over ten years and the fact that project had not been developed the comprehensive permit should be nullified. The town counsel argued: "In my opinion, the right to rely upon the decision made 10 years and 7 months ago has been waived by failure of the Wilson Street Trust to insist upon its rights." However, it seems that Wilson Street Trust had in fact gone to the Norwood ZBA throughout the late 1970s and early 1980s to get approval on the site plans to no avail. In November 1984, the HAC did certify that the comprehensive permit was still in effect and that the "decision has not been amended, modified or terminated and it continues in full force and effect." The ZBA had to carry out of the issuance of the permit within 30 days.

On December 11, 1984, the Norwood Board of Appeals finally granted a comprehensive permit to the Wilson Street Trust. The permit is for the construction of 139 units of subsidized low and moderate income housing subject to two conditions: (1) the final plans had to be approved by the Building Inspector for the issuance of a building permit, and (2) a permanent

conservation buffer strip was required on the plans.

A *Patriot Ledger* article discussed the final agreement between Wilson Street Trust and the Town of Norwood. However, it was not an agreement that really satisfied the town, the Selectman Chairman "described the agreement as 'the best we can do ... we're not jumping up and down for joy.'"[13] The State Representative, also involved in the process, was also not altogether pleased with the end result: "If this compromise is architecturally feasible, the net result will be a substantial improvement for the neighbors. But for the neighbors it's still a bitter pill to swallow. This will put a sugar coating on it... During the negotiations we had two basic goals: to either stop the project altogether, or to somehow create a large buffer area around the apartment buildings."[14] The desire to buffer the development is important, if the town was going to have to accede to the development, at least they did not want to have to see it from the street and their backyards. What is also important about these quotes is that the issues raised by the State Representative are somewhat different from those raised throughout the permitting process from the initial denial by the ZBA, again with the HAC, and the SJC. The earlier opposition claims were issues of school impact, water supply, traffic, and on-site drainage. The above comments are similar to comments made by Burlington Selectman during the Pheasant Ridge permitting process in that they were trying to come up with any excuse just to stop the development from happening.

Opposition Conclusions

Despite a need for over 1,000 low and moderate income housing units at the time Olde Derby Village was proposed, the project faced vehement opposition. Norwood was able to hold up the process for more than 13 years primarily because although the comprehensive permit was granted and confirmed by the HAC and then the Superior Court, they were still able to control the development through the comprehensive permit's requirement that the project was to comply with Norwood's building code and that the town was to approve detailed construction plans and specifications. The permit was written by the HAC in 1974, in Chapter 40B's infancy. It is logical to conclude that not only was the town not very 40B-savvy, but the HAC and Superior Court were likely not very savvy at this point in time as well. The HAC and Superior Court's allowance of Norwood to stall the development for over a decade without any intervention points to some significant problems with the 40B process.

The opposition to Olde Derby Village in Norwood was varied but similar to those raised in Burlington with Pheasant Ridge. There were numerous reasons for opposing Olde Derby Village cited in the Superior Court documents regarding health and safety hazards, traffic, drainage, school impact, and water supply issues as cited by the Board of Appeals, School Committee, Planning Board, and the Board of Health. However, the *Patriot Ledger* article seems to address what town residents really cared about, first and foremost, stopping the project from happening and they were grasping at every possible option for complaint to just get rid of the project.

In terms of the relationship of the development opposition to the characteristics of Norwood, as in Burlington, the Norwood experienced a population loss during the 1980s of 3.4 percent, and development opposition is often more likely in slow growing communities. Additionally, Olde Derby Village has a density of 15.4 units per acre, more than eight times higher than Norwood's average density of 1.8 units per acre.

AVALON OAKS, WILMINGTON

Avalon Oaks in Wilmington was also a highly contested project during its first iteration in the late 1980s. The site was initially proposed for the Wilmington Arboretum development in 1987, but the town denied the comprehensive permit, and the decision was appealed to the HAC. The HAC ordered the granting of the permit, but Wilmington appealed the decision first to the Superior Court and then to the Massachusetts Appeals Court. The comprehensive permit was decisively granted by the Appellate Court in September of 1995.

However, during the eight year court battle with Wilmington, the original developer of the property, Wilmington Arboretum Associates, went bankrupt and was forced to transfer the rights to develop the site to its mortgagee in 1992. The mortgagee oversaw the appeals process through to the Appellate Court decision in 1995. In 1996 through 1997, Avalon Bay Communities purchased the site and requested a transfer of the same comprehensive permit. The Wilmington Board of Appeals granted the transfer but held all of the requirements and conditions of the initial permit the same, including an identical number of housing units and affordability requirements.

It is interesting that the Avalon Oaks project was not nearly as controversial as the

initial proposal for Wilmington Arboretum. According to Wilmington's director of planning and conservation, one of the reasons for this was that the new developer "sat down with the town and redesigned the project... They're three-story buildings, but very interesting from an architectural perspective."[15] Because of this change in building type, according to the director, the project became an "an entirely different animal from what people typically imagine when they think of affordable housing."[16] Not only was Wilmington able to at lease contribute to the design (if not the overall density) of the project, the project itself evolved from what residents perceived as a large affordable housing development to a well-designed market rate project with a percentage of affordable housing.

Community Context

The Town of Wilmington is a suburban industrial town 15 miles north of Boston. The town's population grew by more than 21 percent between 1990 and 2000, and currently has approximately 21,000 residents. However, despite this population growth; Wilmington's density is only 0.65 housing units per acre, relatively low in comparison to the other communities in the study. The town's housing stock is primarily owner-occupied, more than 90 percent and the highest rate of homeownership in the study, and in 2000, the town had one of the lowest vacancy rates in the study group, 1.8 percent. Finally, Wilmington is also one of the least diverse communities in the study with only 4 percent of its residents identified as non-white in the 2000 census. The median single-family house price in 2003 in Wilmington was $344,000, an over 120 percent rise from 1993. The town 2000 median gross rent was $948, relatively high in comparison to the other studied communities.[17]

Nature of Proposed Development

Completed in 1999, Avalon Oaks is a 204 unit development of garden style apartments with 41 affordable housing units. Consisting of primarily two and three bedroom units, the $23.5 million development is dispersed over eight three-story walk-up buildings. With 20 percent of the units defined as affordable to households earning at or below 50 percent of the AMI, Avalon Oaks has the lowest percentage of affordable units in the study. The project includes a community center, an outdoor swimming pool, and a small playground. The site abuts a wooded conservation area, single-family homes, and Wilmington Intermediate School. It is also located just a few hundred yards from an entrance to Interstate 93. Avalon Oaks'

Figures 7.9 - 7.12 Avalon Oaks Aerial and Site Photographs

neighborhood and site context are exhibited in Figures 7.9 through 7.12.

Opposition Overview

In August of 1986, the Wilmington Arboretum Apartments project was proposed to the ZBA as a 204-unit multi-family rental development. The development plan included MHFA financing and 20 percent of the units would be affordable. The plan was not well-received with either the ZBA or the Wilmington residents and caused a great deal of outcry. In an effort to assuage the town, the developer then submitted an alternative development scenario in May of 1987 with a homeownership plan of 192 condominium units, 25 percent of which would be affordable.

The Wilmington Board of Appeals issued a decision to deny the comprehensive permit

for Wilmington Arboretum Apartments on August 18, 1987. The ZBA issued their decision based on the initial 204 unit rental proposal as opposed to the alternative condominium plan that had been proposed three months prior. The Board found that although the town had a long public housing waiting list, there was a need for low and moderate income housing in Wilmington, and there were no provisions for multi-family development in the town, they had to deny the comprehensive permit.

Of all the Board of Appeals denial decisions examined by the study, this was perhaps the most interesting and contradictory, at one point seeming as if they are going to grant the permit, and then ultimately issuing a denial. The Wilmington ZBA went to great lengths to describe the purposes and impacts of the Chapter 40B legislation. The decision states:

> The underlying premise of Chapter 774 [now Chapter 40B] is that the legislature has ultimate control over local zoning... Furthermore, the legislature has obviously determined that the suburbs must share some of the burden of providing low income housing, and the statute defines that share... The assumption must be that the suburbs one way or another, prohibit such housing. So this procedure, whether wisely conceived or not – was adopted in c. 774 of calling for a comprehensive permit which will cut across the established practice of getting separate permits... and will allow the construction of apartments in areas where the zoning does otherwise not permit them.
>
> ... This Board must obey the law... If the Town will not make provision for low income housing, then the legislature will has said it is to be done by means of the procedures established in c. 774. This legislation obviously flies in the face of the popular vote. So the number of people in Town who are opposed is not directly relevant. This Board cannot simply say no permit will be issued because more people are against it than are for it. [18]

These two quotes from the ZBA decision imply that Wilmington was set against the project from the beginning just in that the legislation is meant to supercede local zoning autonomy and assure that suburbs share the burden of providing affordable housing. Whether or not the ZBA, the town, and "the popular vote" are against 40B developments does not make a difference, the ZBA cannot deny the permit based on that criteria.

While there are no transcripts or meeting minutes from the permitting hearings, the decision makes references to resident opposition to the proposed development: "This Board was forcefully impressed with the intensity of the feelings of the many speakers. The provisions of c. 774 have caused us to concern ourselves with the health and safety of the occupants, and the townspeople." This quote implies that at the hearings intense opposition to Wilmington

Arboretum Apartments was heard regarding purported negative health and safety impacts of the development on the town.

Towards the end of the decision, the ZBA lists over 30 conditions that the comprehensive permit would have to abide by, but then concludes with the following statement: "If, however, the applicant is able to satisfy the stated conditions cited for denial the application would be granted." In reading the decision, it is almost as if the ZBA had intended to grant the permit and then at the last minute decided against it. Bizarrely, one of the conditions proposed by the Board of Appeals was that at least 25 percent had to be affordable for moderate income home purchasers, already part of the alternative plan. This is one of only two mentions of the homeownership development scenario in the decision.

The Boston Globe ran a story about Chapter 40B shortly after the ZBA decision and referenced the Wilmington project opposition. The article mentions that a 1,600 signature petition was circulated around the town in order to fight two proposed developments using 40B zoning relief. The fight was not about elitism and snobbery though, according to one resident who moved to Wilmington to find some privacy: "'I'm not a snob' ... She said the project is 'too dense ... but density is not considered a proper reason for denying a permit under Chapter 774 [now Chapter 40B]... Abutters have no say.'"[19] However, the role abutters play in the decision making process is confusing; one developer complained that abutters were using comprehensive permit hearings "to badger local officials who then believe 'they have to give 100 percent approval from every single person in town." [20] But, according to towns, the real issue is that developers are trying to turn suburban communities, made up of primarily low density large single-family housing, into urban neighborhoods: "Wilmington town manager Reginald S. Stapczynski argued that developers 'are trying to urbanize our suburbs, take an area that is all residential homes and put in all apartments and condos where there aren't any. That's where the rub is." [21]

Immediately after the Wilmington ZBA decision to deny the comprehensive permit for Wilmington Arboretum, the developer filed an appeal with the HAC on the grounds that the ZBA's decision was "unreasonable, not consistent with local needs, without foundation in fact, imposed uneconomic conditions and on the grounds that the proposed development was in fact reasonable and consistent with local needs and in accordance with" Chapter 40B. [22]

Adjudicatory hearings regarding the appeal were held over much of 1988 and 1989.

In June of 1990, the HAC overrode the Wilmington ZBA decision and granted a comprehensive permit to the Wilmington Arboretum project for the construction of a 204-unit development with affordability restrictions on 20 percent of the units. The HAC found that neither the town nor the ZBA presented any contrary evidence on the issue of local and regional need. In fact, a planning firm hired by the town in 1988 to examine the town's development regulations and their impact on housing affordability, found that the zoning by-laws unreasonably restricted the supply of housing in Wilmington, residential development in the town was restricted to single-family housing on large lots, local regulations added unreasonably to residential development costs, the minimum lot size and frontage requirements were unusually high, and that the town actually discourages the development of affordable housing.

Other issues raised by Wilmington during the appeals process were that the proposed development did not conform to the town's Master Plan, the density was much too great, the proposed access roads were not suitable, and the purported negative impact of the development on the sewer system, traffic congestion, and fire safety.

During the HAC hearing process, Wilmington filed a motion to dismiss appeal on three alleged grounds: (1) the developer failed to give adequate notice; (2) the proposed development was changed from rental to ownership and in design and layout than what was presented for the purpose of site approval; and (3) the Board of Water and Sewer refused to give permission for the development to be connected to existing infrastructure. However, the HAC ruled that "each of these grounds is without merit."

The HAC ultimately ruled that the decision of the Wilmington Board of Appeals was unreasonable and not consistent with local needs. However, the HAC did not just give the developer carte blanche; they placed numerous conditions on the comprehensive permit with respect to such items as building height, parking, and rear and side yard dimensions. The town appealed the HAC decision to the SJC.

In September of 1992, while the comprehensive permit was held up in an appeals process, Wilmington Arboretum Apartments Associates, the project developer, the property mortgagee foreclosed on the mortgage and took title of the property. Together, Wilmington Arboretum Associates and the mortgagor requested a transfer of the comprehensive permit

which the HAC granted. The transfer was contingent on the restrictions established by the comprehensive permit, i.e. that the site would still be developed as affordable housing and follow all the conditions placed on the development's plan and unit count. Wilmington opposed the transfer of the permit and appealed the HAC's decision.

In December of 1993, in two separate decisions, the Superior Court upheld the HAC decisions which granted the comprehensive permit to Wilmington Arboretum Apartments and allowed the permit transfer from the original developer to the new entity established by property mortgagor. The Wilmington ZBA and Town of Wilmington together filed an appeal of both Superior Court decisions to the Appellate Court of Massachusetts. The Appeals Court affirmed the previous judgments by the Superior Court and the HAC in September 1995. According to the Appellate Court, "Wilmington has raised several issues on appeal, none of which we find have any merit." The Court ruled that the comprehensive permit still stood and accepted the transfer of the permit.

In August of 1997, Avalon Bay Communities (Avalon) began communication with the Wilmington Board of Appeals in an attempt to obtain another transfer of the comprehensive permit from the entity established by the property mortgagor to Avalon in order to develop the property. Prior to this, Avalon began the steps required to acquire an develop the property from the mortgagor. Avalon determined that the changes made to the proposed project, henceforth "Avalon Oaks," were "insubstantial" enough as to not require a new set of public hearings. The building heights, number of units (204), building type (garden style apartments), tenure (rental), and financing all adhered to the original comprehensive permit conditions.

The Wilmington ZBA approved the transfer of the comprehensive permit to Avalon on December 2, 1997, more than eleven years after the initial permit application for the site. In exchange for the comprehensive permit transfer, Avalon had to adhere to all of the original requirements set forth by the permit as well as take responsibility for installing all sewer and water infrastructure extensions at their own cost. They also worked with town officials in redesigning the buildings and site layout.

Opposition Conclusions

There was a significant need for affordable housing in Wilmington at the time of the initial permitting process; only 2.8 percent of Wilmington's housing stock was affordable, in

contrast to 27.8 percent of the town's households earning less than 60 percent of the area median income. But this need did not outweigh resident's desire to stop the project.

As discussed above, Wilmington contested the comprehensive permit for Wilmington Arboretum for many reasons but primarily density, sewer and water issues, health and safety concerns, and the project's lack of conformity with the town's Master Plan. Additionally, a good deal of the original opposition to the Wilmington Arboretum comprehensive permit focused on complaints of urbanization of the town. Residents were also concerned about the urbanization and the "densification" of their town. In terms of the non-conformity with Wilmington's Master Plan, the opposition arguments were very similar to those voiced in Burlington with respect to Stone Brook Farms.

In terms of the relationship of the development opposition to the characteristics of Wilmington, the town has a relatively large percentage of homeowners with a mortgage, 77 percent, the second highest rate in the studied communities. Accordingly, it can be inferred that this large majority of homeowners would be averse to any risk to their home values and more likely to oppose the development. Moreover, more than 90 percent of the housing units in Wilmington are owner-occupied making this group of leveraged homeowners an overwhelming majority of town residents. Also, as in Burlington and Norwood, the rate of growth in Wilmington was very slow, which is often related to higher rates of development opposition. Additionally, in terms of the density argument, the plans for both Avalon Oaks and Wilmington Arboretum have the same density, 9.1 units per acre, 14 times higher than the town's average of 0.65 units per acre.

It is interesting that the Avalon Oaks project was not nearly as controversial as Wilmington Arboretum. According to Wilmington's director of planning and conservation, one of the reasons for this was that Avalon worked with the town to redesign the project, changed the building types, and really seemed to spin the project as a market-rate development with a percentage of affordable units as opposed to a typical multi-family rental housing project.

KIMBALL COURT APARTMENTS I, II & III, WOBURN

The Kimball Court Apartments project in Woburn also had significant opposition throughout the early years of the development process. The project has evolved into a three

phase development, garnering less and less controversy throughout time. Kimball Court's first phase was not developed until the Massachusetts Appeals Court upheld the HAC and Superior Court's decision to grant the comprehensive permit in May of 1985. The second and third phases of the project however did not face any significant opposition and were approved in a timely manner by the Woburn Board of Appeals in 1989 and 1999 respectively.

Community Context

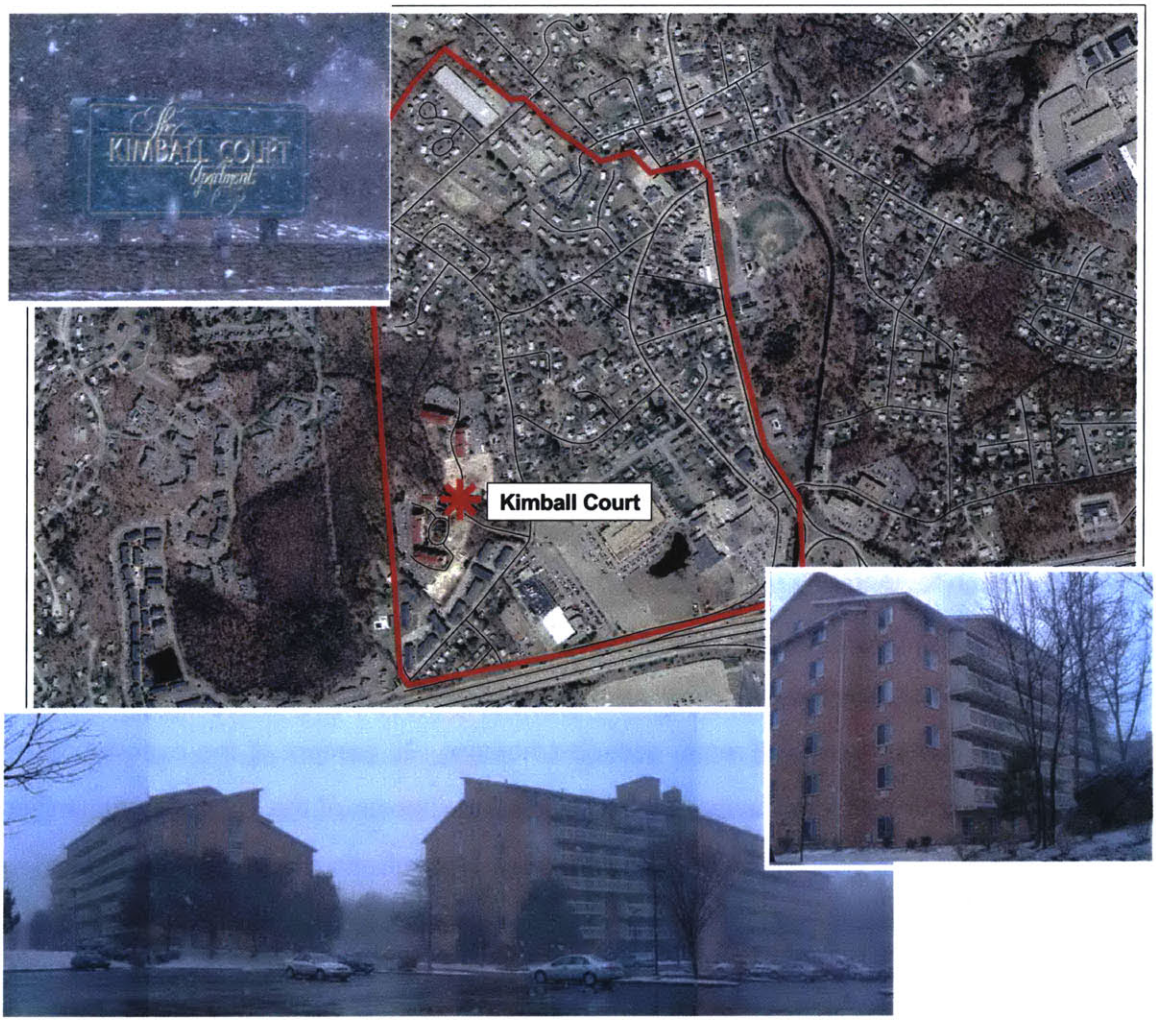
Located 10 miles north of Boston at the intersection of Interstates 93 and 128, the City of Woburn is a suburban industrial city. Unfortunately, Woburn became known to many by the book *A Civil Action* which highlighted the history of the leather tanneries and their purported contamination of drinking water causing a leukemia cluster in the city. While the town experienced a steady population increase over the past two hundred years, Woburn's growth has been tempered in recent years; the city's population of 37,000 remained relatively stable from 1980 to 2000, growing by less than two percent.

Woburn is the densest community in the study with 1.9 housing units per acre. It also has one of the highest rates of renter-occupied housing, 39 percent of the overall housing stock. In addition to Woburn having the lowest median income of the studied communities, nearly $55,000, it also has one of the lowest percentages of affordable housing, making up only 5.7 percent of the city's total housing stock. The median single-family house price in Woburn in 2003 was $331,000, an increase of 130 percent from 1993. Woburn's median gross rent in 2000 was $881, close to the median of the studied communities.[23]

Nature of Proposed Development

Kimball Court Apartments directly abuts the Town of Burlington, a small commercial/ light industrial area, and a single-family residential neighborhood. Kimball Court Apartments, Phase I consists of 184 units, 46 of which are affordable (25 percent), dispersed over two seven story buildings. This phase, financed through MassHousing's SHARP program, was completed 1988. The second phase of Kimball Courts has 167 units, 34 of which are affordable. Phase II was complete in 1990 and was also financed through the SHARP program. The development's third phase, completed in 2002, consists of 174 units, 39 of which are affordable. This phase was the first development to be financed under MassHousing's Expanding Rental Affordability Program, which requires at least 20 percent of the units to be affordable to families earning 80

Figures 7.13 - 7.16 KImball Court Apts Aerial and Site Photographs



percent or less of the area median income without direct subsidies.

Kimball Court Apartments, Phases I through III, developed for approximately $67 million, now consists of 525 housing units, 127 of which are affordable (24 percent) dispersed over six seven-story buildings. Consisting of almost all one and two bedroom apartments, 278 and 230 units respectively, Kimball Court is not a necessarily family friendly development, but does have a community center and a small playground. The complete development has a density 19.34 units per acre, by far the densest development in the study.

The Boston Business Journal lists Kimball Court as the 6th largest apartment complex in Massachusetts. Kimball Court is not finished though; in the Fall of 2002 the Town of Burlington approved an additional 250 apartments on an adjacent parcel, which will raise the

total development size to 775 units when completed.[24] Figures 7.13 through 7.16 show the neighborhood and site context for Kimball Court.

Opposition Overview

Kimball Court's developer, Joseph Mullins, properly filed a complete application for a comprehensive permit on October 6, 1983. After receiving the complete permit application, the Woburn ZBA attempted to extend the requisite amount time in which they had to hold a public meeting (30 days), but the developer's attorney denied this request. According to the Chapter 40B statute, Woburn went against the mandate to convene a hearing within 30 days. Moreover, the Woburn Board of Appeals failed to appropriately advertise for the public hearings. Possibly in light of their wrongdoing, there was only one public meeting regarding the development on November 4, 1983. Additionally, the board also failed to advertise for a December 3rd meeting at which they deliberated and voted on the permit. The ZBA issued a denial of the comprehensive permit on December 14, 1983.

The board based its decision to deny the permit based on its inconsistency with local needs and that the proposed development "would have an adverse effect on the health and safety, not the occupants of the proposed housing but the residents in general."[25] Additional concerns cited by the ZBA were drainage, flooding, inadequate water pressure, and that the access road to the site was unsafe. In short, the board believed that the development would have a "deleterious effect" on the health and safety of town residents.

In October of 1984, the Superior Court decided in favor of granting the permit to Kimball Court for a number of reasons, but primarily because the Woburn Board of Appeals failed to act within the statutory time period. According to a previous court decision, the Chapter 40B was enacted "to provide *expeditious* relief from exclusionary local zoning by-laws and practices which might inhibit construction of low and moderate income housing in the Commonwealth's cities and towns."[26] [Author's emphasis] Additionally, the Superior Court found that proper notice was not given for the public hearing; the notices were late and were not posted in the appropriate locations.

The court described at length the reason for taking the statutory requirements of proper notice and timely hearings. Proper notice is designed to promote the general welfare of the community and give citizens the chance to voice questions, concerns, or support for projects.

The ruling states that the decision they made regarding the granting of the permit to Kimball Court was not based on a technicality of the statute, "but a legislative and jurisdictional policy that citizens in the town are entitled to notice and the opportunity to be heard and that this policy will be strictly enforced." It is an important policy and not to be taken lightly.

On May 24, 1985, the Massachusetts Appeals Court affirmed the decision of the Superior Court and in doing so ordered the issuance of the comprehensive permit for Kimball Court Apartments.

The second and third phases of Kimball Court Apartments were both approved by the Woburn Board of Appeals, in 1989 and 1999 respectively, without significant opposition.

Opposition Conclusions

Woburn's opposition to the initial phase of Kimball Court Apartments primarily resulted from concerns over the health and safety of the potential residents of the development, as well as town residents in general.

Additionally, some interesting observations can be made with respect to the relationship between development opposition and community context. Kimball Court's density is 19.3 units per acre, by far the densest development in the study, and more than ten times higher than Woburn's average of 1.9 units per acre and likely the cause of some resident opposition. Kimball Court also abuts a single-family neighborhood, as does Stone Brook Farms, Olde Derby Village, and Avalon Oaks, also likely to incite opposition by abutting homeowners. Additionally, Woburn has a comparatively low median income, the lowest of the studied communities, which is often related to development protest. Also in line with previous findings of slow growth communities being more likely to oppose development, Woburn saw negative growth in the 1980s with a two percent decline in its population.

CONTENTIOUS DEVELOPMENTS

This section focuses on the relatively contentious developments in the study which are defined as projects that either had a prolonged and contentious comprehensive permitting process but were ultimately approved by the local Board of Appeals, or were initially denied by the ZBA, appealed to the HAC, and then settled in mediation between the developer and the Board of Appeals with some HAC oversight. The developments described in this section are

Pondside in Littleton, Mansfield Depot in Mansfield, and Liberty Place in Randolph.

There is a great deal of similarity regarding the many stated reasons for the community opposition of these three projects. Typical complaints of new development consisting of drainage, flooding, development density, sewer connections, and traffic were all common outcries by residents and municipal officials during the comprehensive permitting process. However, the protesters of the following developments were not quite as desperate to stop the development as they were in the previous section of highly contentious developments. Many of the residents and municipal officials speaking at public hearings and writing letters regarding the projects described in this section were not supportive of the projects, but they also did not give the impression that the proposed development was going to ravage the town by creating major infrastructure problems, overcrowd the schools, or overburden the town's water supply as was common in the previous section.

In addition the similarities for opposing the three developments in this section, there was also a great deal of animosity between the developers and municipal officials during the permitting hearings, especially in Littleton and Randolph. The towns felt that they had lost control over development in their community, that the Chapter 40B statute took away their power to control land use decisions, the reason for having a local zoning board in the first place. As with the projects described in the previous section, the developers were often not afraid to threaten the towns with litigation and potential loss of state funding, confidant that they would ultimately receive permit approval from the HAC or the courts.

However, because these three projects ultimately received their comprehensive permits from the local ZBAs, as opposed to the courts, the towns were able to have some level of control regarding the design and density of the projects. Although this resulted in a longer stage 2, with negotiations regarding permit conditions, stage 3, the resolution stage, resulted in a significantly more amicable solution for both the developers and municipalities. Randolph arranged a reduction in the density and permanently affordable units at Liberty Place; Mansfield persuaded the developer to partially fund infrastructure costs, contribute to the local school system, and increase the affordability ratio of the Mansfield Depot project; and Littleton negotiated a greater percentage of affordable units at Pondside. In return, the developers were able to have their projects approved and permitted in a significantly shorter time frame as

compared to the previous section, won more support from the towns, and saved themselves an extremely costly legal process. These are very different results from the projects in the previous section.

PONDSIDE AT LITTLETON, LITTLETON

Pondside at Littleton was permitted and developed in the same general timeframe as Littleton Green (described in the next section); however, the two projects are very different and caused much different reactions among the Littleton Board of Appeals and town residents. Pondside, located approximately one mile west of Littleton Green, and proposed just a few months after Littleton Green, did not receive a comprehensive permit nearly as easily. Pondside's permit application was originally denied by the ZBA, but ultimately granted after mediation sessions overseen by the HAC in April of 1987.

The comprehensive permit hearings set off some interesting interchanges between the developer and town. The hearings showed that 40B projects are not permitted in a vacuum and that towns have many issues to weigh in making permit decisions. Pondside was proposed right after the town had approved three other comprehensive permits, one of which was Littleton Green, and the town was feeling inundated with permit applications. The ZBA also stressed repeatedly that multi-family development was not allowed in the town for a reason, it was not what Littleton residents wanted. Additionally, the town seemed to be extremely distressed over their loss of control with respect to development in the town as a result of Chapter 40B. The ZBA repeatedly referred to how the statute overrode their authority and rendered them helpless in dealing with developers applying for comprehensive permits. Moreover, somewhat threateningly, it was raised by the developer at one of the hearings that towns not in compliance with 40B risk losing some state funds. There was also an interesting debate between the developer and town regarding the town's desire for Pondside to have a greater percentage of affordable units. However, it seemed that one of the reasons the town wanted more affordable housing was because they were relatively close to reaching Chapter 40B's 10 percent goal making them immune to anymore zoning overrides.

Community Context

Located 26 miles northwest of Boston, Littleton is a largely rural town on the outer

fringe of the Boston metropolitan area. The town is still largely agricultural in character with a both the smallest population (8,000 residents) and lowest density (0.28 housing units per acre) of the communities in the study. Notably, Littleton has experienced significant economic and population growth recently, with a 16 percent increase in population and a 39 percent increase in median income between 1990 and 2000. Littleton has the highest percentage of affordable housing in the studied communities, approximately 8 percent of the town's total housing stock. However, this figure is somewhat misleading in that 8 percent of the town's housing stock comprises only 240 units and Littleton's total housing stock is slightly more than 3,000 units. The cost of living in Littleton is changing drastically; the median single-family house price in 2003 was $360,000, *a 147 percent increase over the last decade*, the largest percentage increase in the study. Littleton's median gross rent in 2000 was $680, the lowest in the study. It is interesting that the town's house prices are relatively high while the cost of renting in Littleton is comparatively low.[27]

Nature of Proposed Development

The $10 million Pondside at Littleton project is a significantly larger development than Littleton Green, examined in the following section. The project consists of 90 housing units, 32 of which are affordable (35 percent of total) and was financed through MassHousing's SHARP program. SHARP requires 25 percent of the development to be affordable, but through the course of negotiations between the developer, the Littleton Board of Appeals, and mediation with the Housing Appeals Committee, the development's affordability fraction was raised to 35 percent. Pondside at Littleton abuts a single-family residential neighborhood surrounding Mill Pond, and is located right off the Littleton exit on Interstate 495. Figures 7.17 through 7.20 present the neighborhood and site context for the development.

Opposition Overview

The Pondside at Littleton project, proposed under the name Littleton Apartments, received a comprehensive permit from the Littleton Board of Appeals after an initial denial and then mediation with the Housing Appeals Committee. The entire permitting process occurred over a nine month period and was relatively contentious with considerable opposition from both zoning board members and Littleton residents.

The first ZBA hearing on the Pondside project occurred in August of 1986, slightly

Figures 7.17 - 7.20 Pondside Aerial and Site Photographs

more than three months after the decision regarding Littleton Green's comprehensive permit was made. The proposal was for 90 multi-family rental housing units abutting Mill Pond to be financed through the SHARP program. Twenty-five percent of the units would be affordable for 15 years, the minimum term mandated by the financing restrictions. The development would include six two-story buildings, a pool, tennis courts, and a water treatment facility. The developer, State Street Development, announced that "this is to be a market rate project of townhouses and apartments" and that "the character of Littleton has been put into the design and determination of what materials to use for construction." At the time of the hearing, only 116 housing units in Littleton qualified as affordable housing and the town needed a total of 223 to reach the ten percent goal and a letter from the housing authority was read stating the need for additional affordable housing in the town.

At the hearing, the Planning Board, strongly opposing the development, commented that "the Board of Appeals has granted such permits in the past and a project which only has

twenty percent subsidized units is greatly lacking and is not a legitimate override of the zoning and therefore the Planning Board is against this project." Also at the hearing, another speaker in opposition to Pondside "agreed with the Planning Board's stand and that this project seems like a high price to have shoved down the Town's throat and seems to be a way around the zoning." The developer's attorney responded that "the state statute is being used because such projects are not allowed in Littleton." Without a zoning override, Pondside could never be developed in Littleton because there was no allowance for multi-family housing in any part of the town.

The next hearing on Pondside was in September of 1986. Someone speaking for the housing authority came to the hearing in order to state that the Littleton Housing Authority was in support of the project, but preferred that the development would be financed under the TELLER program as opposed to the SHARP program. When active, the TELLER program was administered by housing authorities as opposed to state housing finance agencies (like SHARP) and allowed the local housing authority significant more control over the project.

However, one ZBA member stated "that this proposal is against what the people of Littleton have said that they want in their town." Another ZBA member commented that "the Board has accepted that it must take these projects but the townspeople have consistently indicated that they don't want multi-family units in Littleton!" [Emphasis in original] The board member added that he didn't think the town "would swallow seventy-five percent not subsidized" housing. In other words, it did not seem right to only get 25 percent affordable units for the price of a relatively large development for a town the size of Littleton; board members felt that if the town is going to approve such a large development, they should at least be getting more needed affordable housing.

Also discussed at the hearing were debates regarding the merits of TELLER versus SHARP funding for the development, the length of affordability restrictions, and what the board perceived as the inevitability of approval of the comprehensive permit because Littleton had yet to meet the statutory minimum of affordable housing units.

The ZBA issued their decision on October 2, 1986 after two hearings on the petition for the comprehensive permit. They found that although there remains a deficit in terms of the numerical standards for low and moderate income housing in Littleton and that the Zoning By-

Law has no provision for multi-family housing as a permitted use, the development proposal for 90 units with 20 to 25 percent affordable was too small a proportion of the total number of units proposed. They felt that to have 75 percent of the development market rate apartments was "a flagrant circumvention of Littleton's Zoning By-Law... The Zoning By-Law is not permissive of multi-family housing and the Town has consistently refused to alter it." The board commented further that "the proposal as presented, with particular reference to the market rate units, is not in accordance with the express will of the Town or in the best interests of the Town of Littleton." The decision also discussed that the ZBA had received three applications for comprehensive permits and granted all three permits in the previous two years. They felt that Littleton needed some relief from more new development. The Board voted unanimously to deny the petition for a comprehensive permit.

Pondside's developer notified the Housing Appeals Committee of the decision four days after the permit denial. The HAC held a meeting the following week, attended by representatives of the Littleton Board of Appeals and the development team, and "informally suggested ... that the parties meet in recognition of the statutory requirements and attempt to reach an agreement." Over the following six months, the developer, HAC representatives, and ZBA members worked together to settle some of the issues pertaining to the denial of the comprehensive permit.

As a result of this mediation, the Littleton ZBA oversaw a second round of hearings regarding the Pondside comprehensive permit in March and April of 1987. At the March hearing, the town counsel "advised that the Board of Appeals' denial of a comprehensive permit would not be upheld in court and the process would be costly, time consuming, and a lost cause." In recognition of another rejection of the comprehensive permit being a lost cause, the Board made a motion to rescind the previous denial and reconsider the petition. The developer gave a list of conditions to which they would agree including that no less than 20 percent of the housing units would be set aside for low and moderate income housing during the period required by the project's financing. Additionally, the development team, none too subtly, pointed out at the hearing "that towns which do not comply [with Chapter 40B] suffer from withholding of state funds." At the close of the hearing, the ZBA chairman and petitioners decided to work out the comprehensive permit details and present them at the next Board of

Appeals meeting in April.

At the April hearing, it was announced that the developer's attorney, after consultation with board chairman, had prepared a draft decision defining terms of comprehensive permit. The Board voted to adopt the comprehensive permit as it was written by the development team with no alterations. They made a motion to inform the HAC that the town and the developers agreed on the permit, the prior vote was rescinded and a new decision was issued.

The decision noted the history of the permit hearings and subsequent meetings between the development team, the HAC, and the Board of Appeals. The decision found that there is a local need for low and moderate income housing in Littleton, and that the granting of the "Comprehensive Permit is consistent with local needs... and the project will contribute to Littleton's satisfactions of its low and moderate income housing obligations." The decision was approved by a board vote of four to one. The decision stated that at least 20 percent of the apartments would be affordable, but by the time the project received final funding approval from MassHousing, the ratio of affordable units had been increased to 35 percent.

Opposition Conclusions

The Littleton ZBA and local residents found numerous reasons to oppose the Pondside development, but most of the opposition seemed to be a result of the loss of control of the town over local zoning. Over the previous two years, Littleton had been subject to three comprehensive permit applications and granted all three. It appeared that one of the deciding factors in the Board of Appeals' denial of the permit was just because the town felt they deserved a moratorium on new development and comprehensive permits.

The town also felt that if the Board of Appeals was going to have to permit multi-family development, at least the developers could provide more affordable units to alleviate the growing need for low and moderate income housing units in the town. However, the town's desire for a larger percentage of affordable units in the development was not completely virtuous, they also recognized that Littleton was close to reaching the ten percent goal of the statute, which when reached, released the town of its obligation to grant comprehensive permits to non-conforming development projects.

There is also a relatively strong relationship between the opposition to Pondside and the characteristics of Littleton. The density of the project is 9 units per acre, significantly higher

than the town's average density of 0.3 units per acre, which is by far the lowest average density in the study. As described above, Littleton is still a relatively small agricultural community and a fairly dense project like Pondside is very different from most of the housing in the town. Moreover, at 90 units, the project alone contributed to a more than three percent increase in the town's total housing stock.

THE VILLAGE AT MANSFIELD DEPOT, MANSFIELD

The Village at Mansfield Depot in Mansfield falls into the second opposition category of contentious developments. The first phase of the development was significantly more contentious than the project's second phase. Similar to Pondside at Littleton, the comprehensive permit for the Phase I was initially denied by the Mansfield Board of Appeals, but ultimately approved after the developer appealed the decision and the permit was settled in mediation sessions overseen by the HAC. After that contentious process, Phase II of Mansfield Depot was approved by the ZBA with some protest from municipal officials but not as much by abutters as was incurred by Phase I. In fact, one abutter who opposed the first phase of the project came out in support of the second.

It is important to note that Mansfield was really able to leverage its control of the permitting process to negotiate with the Mansfield Depot developer. The ZBA created numerous conditions when granting the comprehensive permits for both phases of Mansfield Depot including funds for infrastructure costs, the local school system, traffic and park improvements, and increasing the affordability ratio of the development.

The opposition residents and municipal officials had with respect to Mansfield Deport was relatively typical of concerns of new development, a compilation of "usual suspects" arguments without reference to many issues with affordable housing in general or Chapter 40B in particular. They wrote letters and spoke at hearings raising concerns regarding sewers, road, drainage, traffic, and school impact.

Another feature of the opposition to Mansfield Depot of note was the nature of the concerns regarding property value impact. The impact of the development on the surrounding properties was not raised with respect to the single-family home abutters but the devaluation of the industrial area in which Mansfield Depot is located. Local businesses were concerned that

the development would hinder the success of the industrial zone and limit their ability to perform industrial and manufacturing functions if the neighborhood became largely residential.

Community Context

The Town of Mansfield, 26 miles south of Boston, is a relatively small, rural community with a population of roughly 22,000 residents. Mansfield's economy consists primarily of agricultural and manufacturing firms, and the town has attempted to zone significant portions of land for industrial use with varying degrees of success. Despite its perceived small size, Mansfield grew substantially from 1980 to 2000 with a population *increase of over 66 percent*, by far the highest growth rate of the studied communities. Additionally, the median income increased by nearly 40 percent from 1990 to 2000. However, even with its incredibly large increase in population, Mansfield is still one of the least dense communities in the study, with an average density of 0.62 housing units per acre. Most of the housing units are owner-occupied, but the town does have a substantial portion of rental housing, more than 28 percent of the total housing stock. Mansfield's median single-family house price in 2003 was $350,000, close to a 140 percent increase over the last ten years. The town's median gross rent in 2000 was $761, the lowest in the study. Similar to Littleton, Mansfield's house prices are relatively high while the cost of renting in the town is comparatively low.[28]

Nature of Proposed Development

Located in an area originally zoned industrial and surrounded by industrial uses on three sides, the $20 million development consists of a total of 245 units of mixed-income multifamily rental housing, nearly 30 percent of which is affordable. Phase I of Mansfield Depot, permitted in October of 1986, includes 150 units, 25 percent of which are affordable to residents earning less than 80 percent of the area median income (AMI). Permitted in December of 1987, Phase II includes 95 units with 35 percent of the units affordable. The units in both phases have a comparatively large number of family-sized units with 63 three and four bedroom apartments. Mansfield Depot consists of primarily two and three story buildings and provides a number of services for residents including on-site child care, an exercise room, club house, sauna, and playground. Both phases were financed by MassHousing's SHARP Program.[29] The entire development was completed in July of 1989. Mansfield Depot's neighborhood and site context are shown in Figures 7.21 through 7.23.

Figures 7.21 - 7.23 Mansfield Depot Aerial and Site Photographs

Opposition Overview

Village at Mansfield Depot I

Originally filed in April 1986, the comprehensive permit for Mansfield Depot I was denied by the Mansfield Zoning Board of Appeals after three hearings, and then settled in mediation after the developer appealed to the HAC.

According to the comprehensive permit application, filed in April of 1986, the project site was vacant and partly forested and surrounded by an apartment complex, "moderately-priced single-family homes," a manufacturing facility, and some commercial buildings. In terms of housing need, at the time Mansfield had "experienced rapid growth during the past several years, with a projected population increase of 30 percent during the 1980's."

A ZBA hearing regarding the proposed comprehensive permit was held on May 22,

1986. At the hearing, correspondence was read from the planning board, fire department, the Industrial Development Commission, and the Mansfield Housing Authority. The Housing Authority offered "complete support" for the project citing the need for low-cost rental housing "in a town that is experiencing a great deal of growth" and at the time had 300 applicants on MHA waiting list. The planning board, on the other hand, was not as supportive of the project; in their memorandum to the ZBA they noted a number of concerns regarding the proposed development, including drainage, site lighting, means of access, sidewalks, and safety concerns regarding residential development in an industrial zone. The Industrial Development Commission commented that they did not oppose the project, "however, it is not the best use of our industrial land." [Emphasis in original] In addition, the planning director, "abutters and interested residents" made comments at the hearing, although the meeting minutes do not elaborate on what specific comments they made. At the end of the meeting, the hearing on the project was continued until June to allow for further comments from residents and municipal officials and ZBA deliberations.

At the June 3, 1896 hearing, letters were read from the town manager, the Board of Selectmen, and abutters. The Board of Selectmen's memorandum to the Board of Appeals requested a traffic study for the site and was very concerned about the impact of resident car trips on the already congested streets in the neighborhood. One abutter letter from a business owner was very concerned about the impact of residences on the surrounding businesses: "residences will, inevitably, have an adverse effect on the possibility of other business development in the area and could also decrease the value of our property as industrial land." The town manager's letter recommended that the ZBA approve the project application if a number of conditions are met including construction of a fence along the perimeter of the project "to keep unplanned shortcutting by pedestrians through adjoining properties," provision of a buffer, proper drainage, and pedestrian walkways. Comments at the hearing from abutters and residents regarding water problems in the area "as well as other concerns" were also noted in the meeting minutes. The hearing on the project was continued again until July.

The only notes in the meeting minutes from the July 1, 1986 hearing regarding Mansfield Depot were that a motion to deny the comprehensive permit was made, four of the board members voted in favor to deny the permit with one member opposed.

The Board of Appeals' denial of the comprehensive permit was filed in July of 1986. According to the decision, the permit was denied for a number of reasons, including that the "applicant did not present a convincing case that the Town of Mansfield hampers the construction of low or moderate income housing." Additionally, since the project site was located in an industrial zoned area, the "Board felt that this was not the best use of the industrial land and the project may be incompatible with industrial uses." Concerns regarding deflated property values in the surrounding industrial area were also specially raised in the ZBA decision: "This concern was also voiced by industrial abutters who are concerned it may depreciate industrial land values and limit the further development of the Ryan and Elliot Industrial Park." Additional concerns regarding whether or not the developer had properly searched for property in multi-family residential zones, traffic, drainage, flooding, access roads, accessibility, and proximity to amenities and services were also raised.

One abutter claimed to have received little information regarding the project up to this point and was very distressed about the project. The abutter, who owned a business on a nearby site, wrote a letter to the ZBA in October of 1986 protesting the project commenting that *"Naturally, one of my biggest concerns is for the value and viability of my business property."* [Author's emphasis]

After an appeal to the HAC, the ZBA and the developer reached a settlement agreement in October of 1986 with a number of conditions, including construction of a secondary access, fencing, suitable drainage, sidewalks, and a school bus shelter.

Village at Mansfield Depot II

The comprehensive permit application for the Village at Mansfield Depot II was filed with the ZBA in September of 1986. Prior to the first ZBA hearing on the project, the development received support from the Mansfield Housing Authority. Also before the first hearing, the planning board voted unanimously to send a negative recommendation to the ZBA with respect to the project. Their letter addressed concerns regarding traffic, length of the roadways, amount of parking proposed, water and sewer lines, pedestrian circulation, number of stories of buildings, setbacks, entrances from main road, and commented that the "density is too thick for a site of this size."

The October 6, 1987 hearing was uneventful, letters regarding the project were read

into the record and the hearing was continued until October 20th to finish the presentation, answer questions, and allow abutter comments.

The hearing on October 20, 1987 elicited no comments from any abutters, but of note, a letter was entered into the record from an abutter who was opposed to the first phase, but was now writing in support of Phase II stating that the "developer of the complex has been a good neighbor, and we are working together to maximize the positive aspects of this development and to minimize any negative effects. If I can in some way assist some people who are less advantaged in this town and in this region through this letter, then I will be most pleased."

The third and final hearing regarding the project was on November 17, 1987. Discussions at this hearing revolved around money commitments from the developer to the town for road, drainage, and sewer work, development financing, rental fees, particulars of the SHARP program, projected child population of the development, sidewalks to be constructed, and again drainage concerns. At the end of the meeting, the ZBA unanimously approved the comprehensive permit.

The Mansfield Board of Appeals decision, dated December 16, 1987, granted approval to the project, but subject to 15 conditions including construction of sidewalks, fence separating the development site from surrounding properties, traffic control lines, emergency access road, provision of funds for traffic and park improvements, and a $25,000 contribution to the school department to support the high school's athletic programs. The decision also made clear that the development must contain 33 low- and moderate-income units (35 percent of the total development) for families, and that those units were to remain affordable in perpetuity.

Opposition Conclusions

Both residents and municipal officials were in opposition to the Mansfield Depot project when it was first proposed in the spring of 1986. The development opposition was mainly centered on the proposed change of the property's zoning from industrial to residential use. Questions of whether or not residential development was appropriate on a site surrounded on three sides by light industry were heard multiple times during the permitting process. Also, concerns by local business owners of a devaluation of their property were raised. Although these concerns might seem strange, it seems that town officials and business owners thought that if the area became a residential neighborhood as opposed to an industrial zone, what the

property was originally zoned for, it would be more difficult for the town to attract industrial and manufacturing uses to the area. Additionally, it could be argued that the businesses would be restricted in their practices because of their impact on the neighborhood residents and this would hinder their potential for selling the remaining parcels. The industrial park was intended to be a major economic development engine for Mansfield, but this did not come to fruition as planners and municipal officials had hoped, and the industrial park never really took off. Much of the industrial zone still has yet to be developed today.[30]

The second phase of the development, while less controversial than the first, still had some opposition as well. This opposition consisted of more common issues of density, drainage, flooding, access roads, fencing, and sidewalks.

Interestingly, in a reverse from many residents and ZBA members, the Mansfield Planning Board opposed the second phase of Mansfield Depot mainly because of traffic, density, and water and sewer capacity, but was in full support of development's first phase. In terms of the density argument however, the planning board's argument is somewhat understandable. The site density after the second phase rose to more than 16.6 units per acre, an enormous increase when compared to Mansfield's average density of only 0.6 units per acre.

LIBERTY PLACE, RANDOLPH

The comprehensive permit for the Liberty Place development was ultimately approved by the Randolph Zoning Board of Appeals in July of 1987, but not without an extensive and often controversial four month public hearing process. Throughout the permitting process, residents, ZBA members, and other municipal officials strongly opposed the proposed development for many reasons, with property value concerns among the long list. However, in the end, the town did approve the comprehensive permit in a relatively short time frame and was able to negotiate with the developer for a 12 percent decrease in project size, maintenance of affordable units in perpetuity, and major changes in the site plan including reducing the number of buildings, increasing setbacks, and incorporating more green space.

The minutes from the Randolph Board of Appeals hearings transcribed the most heated arguments examined in the study. The developer and town officials had numerous intense

clashes during the permit hearings, with accusations of dishonesty, poor practice, intentional misrepresentations, and stalling; there we even arguments between ZBA board members.

Additionally, some of the concerns voiced during the hearings raise a real question regarding whether or not the Liberty Place site was really appropriate for multi-family housing. According to some town officials, a large percentage of the site was in a flood control hazard area. Concern regarding the environmental impact of the development with particular reference to flooding and drainage issues on the site were voiced. However, it is difficult to decipher whether or not this was a valid argument or just an excuse to halt the development process. It would seem that the site was a good location for multi-family development, it is next to a school and surrounded by open space and a residential neighborhood.

A petition signed by over 450 local residents was submitted to the Board of Appeals. According to the petition, they were concerned about the impact of the development to their area. Additional concerns referred to this type of housing causing "property to go right down," and that the development could easily turn into a big public housing project. One resident put everything he had into his house when the area was a one family housing zone and he did not want to be looking out on a project. Another said that projects such as these were why people left the city and moved to places like Randolph. These residents clearly did not want Liberty Place to be built in their community were not hedging around the issues.

Community Context

The Town of Randolph is an economically and ethnically diverse community located 15 miles south of Boston. The town has a population of 31,000 and is the most ethnically diverse community in the study with a population that is approximately 62 percent white, with 23 percent and 11 percent of residents African American and Asian respectively. The population is relatively well-educated, but has the lowest rates of high school and bachelors degrees in the study, 87 percent and 27 percent respectively.

In addition to being the most diverse of the studied communities, Randolph is also one of the densest communities in the study with nearly 1.8 housing units per acre. The housing stock is largely owner-occupied with only 28 percent rental-occupied housing units. The town also has a relatively small percentage of affordable housing, 5.7 percent of the total housing stock.

Randolph's median single-family house price in 2003, the lowest in the study group, was $278,000, a 122 percent increase over the last decade and even more overwhelming, a 105 percent increase in the last five years – the highest percent increase in the study. The town's 2000 median gross rent was $863. This is interesting in that the costs of renting in Randolph are relatively high while single-family houses are comparatively low.[31]

Nature of Proposed Development

Liberty Place is a $10 million development consisting of 107 multi-family rental units, 27 of which are affordable (25 percent) to households earning 50 percent of the area median income (AMI). The project consists of three and four story buildings spread over the site surrounded by a significant amount of open space. Liberty Place abuts a local elementary

Figures 7.24 - 7.27 Liberty Place Aerial and Site Photographs

school and a single-family residential neighborhood. The development received financing through the Tax-Exempt Local Loans to Encourage Rental Housing (TELLER) Program which allows local housing authorities the option of issuing tax-exempt bonds to finance privately-owned, mixed income rental housing.[32] Liberty Place was completed in 1989. Figures 7.24 through 7.27 illustrate the neighborhood and site context for the development.

Opposition Overview

The Liberty Place comprehensive permitting process began in April 1987 with a proposal to build 121 units of housing with "25 percent available to low income people" on an 11.7 acre site with an "open site plan." At the time, the development team already had one development under construction and owned another two projects in Randolph.

At the April 9, 1987 hearing a number of issues regarding the development were raised. The Conservation Commission wanted the project relocated to another spot because they felt that this location "would not be in the best interest of the Town of Randolph." According to the Conservation Commission, approximately one-third of the site was in a flood hazard area.

Concerns were also raised by a member of the Randolph School Committee who stated that they did not see the development as having a significant impact on the local schools. However, the School Committee member did comment on the need for low income housing in Randolph and the town's attitude towards this type of development: "Speaking about the concern about people that do no have access to low income housing. The Town has a reputation of being a closed town. There is little to no low to moderate income housing. We have not really done our part. This is the chance to change that reputation and open up our town to other people that need help." Only one other person spoke at the meeting in support of the development.

Significant opposition to Liberty Place was voiced during the meeting. There were a wide range of complaints, including concerns about the already low amount of Town water, traffic, water runoff, drainage, lack of sidewalks on the site plan, close proximity of wetlands to the site, the buildings being too close in the event of a fire, school overcrowding. Residents had additional protests regarding who could afford the market rate rents, commenting that the market rents the developer was planning on charging were significantly higher than anything else in Town.

Many of the comments residents made at the meeting started with one complaint and evolved into something else. One resident commented: "Fifteen years ago I built my house in a one family zone. I put everything I had into it. I don't feel we should have to look out onto a project. We are in a valley. With that much drainage, it will be flooded." Some people mentioned a concern about deflation of property values outright, another resident commented: *"most of the houses in the area are single-family homes. People come and go so quickly, the property goes right down... people will come and go."* [Author's emphasis] At the conclusion of the hearing, the ZBA requested numerous studies regarding environmental impact, water impact, school impact, traffic, water pressure, and drainage.

The May 21, 1987 meeting was an extremely contentious meeting, more so than the April meeting. The developer opened the session announcing they responded to a number of concerns raised at the previous hearing and reduced the project density from 121 to 116 units, they also decreased the number of buildings, added sidewalks and more parking spaces, increased distance between buildings, and moved buildings further back from wetlands buffer.

There were a great deal of complaints from both the ZBA and the development team regarding a lack of professional behavior, late submission of plans and documents, and inconsistent facts and figures regarding unit counts, acreage, and the emergency access road to the site. ZBA members found fault with nearly every document submitted by the developer because of slight errors, seemingly attempting to throw up road blocks at every turn.

At the June 11, 1987 meeting, again highly controversial, a petition was submitted with 452 signatures by residents *"concerned about impact to their area."* [Author's emphasis] In the interim between the current and previous hearings, the development team had attempted to meet with the appropriate Town officials, often to no avail. More complaints were raised regarding the same set of issues discusses previously, close proximity of the development to wetlands, emergency access road issues, traffic, density, lack of usable open space.

Regarding density and the reason people left "the city" to move to a place like Randolph, one resident commented: "The density should be revised because of the lack of usable open space. This is from my own experience from living in a housing project. People move out here to get away from those crowded conditions. It has become a big public housing project with a

couple of trees on the edge." He turned the conversation beginning with an issue of density to envisioning the proposed Liberty Place, with only 25 percent of the units affordable, as "a big public housing project."

Again at this meeting as at the hearing in May, the Board commented on small factual and typing errors in submitted documents and wanted additional impact studies. When the Board requested new submissions of virtually all project documents with minor changes, the development team objected. The developer's attorney repeatedly attempted to request a final decision on the comprehensive permit right then, stating: "We have presented all the relevant information. We have answered the major issues. Other boards have had the time to give any input. I think it would be appropriate for the Board to close the hearing and to act." The attorney was called out of order and the hearing was unanimously continued until July.

The day after this hearing, there was an article in *The Patriot Ledger* entitled "Developer accuses board of stalling." The article quotes the developer's attorney regarding the delay: "It's obviously a runaround. I think it's become clear they want to delay it."[33] In discussing the issues raised by residents opposed to the proposed Liberty Place development, the author cites traffic, adequate roadways for emergency vehicles, and "health and safety problems posed by the long, dead end road that provides the only means of access to the development."[34] The article also refers to a 450 resident petition opposing the project because of its purported impact on the neighborhood.

The July 16, 1987 hearing was the final hearing for the Liberty Place comprehensive permit. This was another long hearing consisting of heated arguments and even insults between Board members. The Randolph ZBA voted to approve the Liberty Place permit subject to *35 conditions* with a close vote of three to two. The conditions included limiting number of housing units to 107 (the final number of units developed), assurance of the development of a swimming pool and clubhouse, outlining of parking space dimensions, and a stipulation that the town shall have first option to purchase the affordable units when the MHFA mortgage is paid off to keep them affordable in perpetuity.

Opposition Conclusions

As was described above, although the Randolph Board of Appeals granted the comprehensive permit for Liberty Place without HAC or court intervention, the project was

still highly controversial and faced significant opposition from both the town officials and local residents throughout the permitting process.

Complaints with respect to density, access roads, and purported property, neighborhood, and environmental impacts were all common during the ZBA hearings. As with Mansfield Deport, there was also a great deal of concern regarding the appropriateness of the site. The site was purported to be in a flood hazard area, and dire flooding, run-off, and drainage concerns were all raised in meetings. However, the site is in a residential neighborhood and next to an elementary school (similar to Franklin School Apartments in Lexington, described in the next section), what sounds like an ideal place for multi-family housing. Also, because the project received financing through MassHousing, it had to receive environmental impact waivers, and if the site was truly going to cause significant environmental damage, it would not have been approved by its financers. Other concerns and complaints raised at the hearings, such as the buildings being fire hazards because they were too close together, small factual and typing errors on plans, detailed discussions on what activities would be held at the clubhouse, and a heated debate about the project's access road through the school grounds seemed to be people grasping at straws to find any reason to stall or halt the project.

A petition with vague wording regarding residents' concern regarding the development's impact on the neighborhood, and people speaking out against Liberty Place as if it was a big public housing project and development such as this were part of the reason why they moved out of the "city" also played a large role in the opposition to Liberty Place.

Another interesting opposition argument was raised by some residents and board members regarding the market rate portion of Liberty Place. According to some ZBA members, the market rate rents that were proposed for the development were going to be higher than the average rents in the town. They felt that the market rate portion of the development was not intended for Randolph residents and inappropriate for the town. This argument seems to imply that people felt if the project was not going to benefit town residents, than there is little reason to permit it.

The history of the site and community characteristics play an important part in development opposition. At Liberty Place, the same developer previously had another proposal for the site for duplex size house lots, but the project was not approved because road

length was a violation. Additionally, Liberty Place's density is 9.15 units per acre much higher than Randolph's average density of 1.78 units per acre, and density was a common reason for opposition during the hearings. Finally, Randolph has one of the lowest median incomes in the studied communities, yet in all the comprehensive permit hearings, there was little mention of a need for affordable housing in the town. Even today, Randolph has one of the lowest rates of affordable housing in the study; only 5.7 percent of the town's housing stock.

UNOPPOSED DEVELOPMENTS

As with comprehensive permit projects in general, not all of the developments in the study were strongly opposed by residents and municipalities. This section describes two developments with little to no opposition during the permitting process and the local Board of Appeals approved the projects in a timely manner. These two projects, Franklin School Apartments in Lexington and Littleton Green in Littleton, were approved without significant opposition and are seen by their communities as successful projects serving local affordable housing needs. However, as will be shown below, these two projects were clearly different from the other developments in the study.

Franklin School is very much a model project in terms of the forward-thinking approach of the town of Lexington. The town surveyed residents, selected an appropriate site for affordable housing, sought development proposals, and had residents vote on the project at town meeting. It seems that the role Lexington played in supporting the development of Franklin School Apartments and catering to the concerns residents had with respect to affordable housing prior to issuing a request for development proposals on the site had a positive effect. Additionally, by locating the development in a former school building they knew the project would be restricted to small and more palatable scale for nearby residents. By pre-empting many of the possible problems that the development could have raised, the town was able to approve the project without incident. Finally, the Franklin School developer made concerted efforts to incorporate neighborhood input into the site plan, open space access, and architectural scheme of the project.

Unlike Lexington, Littleton was not proactive with Littleton Green, but many of the concerns and stereotypes raised as opposition to traditional affordable housing are not

applicable to elderly housing development. Elderly projects are much easier to find approval as they serve a "deserving" population and by their nature do not raise concerns regarding the impact of the development on potentially crowded school systems and traffic congestion. Additionally, just by the very fact that the project is so small, with only 24 units, likely made it significantly more acceptable for nearby residents.

Finally, proactive communities such as Lexington are able to completely reframe the context in which the developments receive comprehensive permits. They accomplish this by creating an alternative model for new development, instead of having the developer come into the town and propose a project in stage 1. Municipalities can establish a whole new 40B process where towns actively seek out appropriate sites, uses for the site, and developers. This new process can create developments with less opposition, permit them more quickly, and help alleviate the severe housing crunch in the state.

FRANKLIN SCHOOL APARTMENTS, LEXINGTON

Franklin School Apartments is a converted 1930 brick school building with four additional townhouse buildings in Lexington. Comprised of 38 units of low and moderate income housing, the project was permitted in October 1986 by the Lexington Board of Selectmen, acting as the Special Permit Granting Authority under the Lexington Zoning By-Law and the Regulations of Chapter 40A, the state Zoning Act. The development was completed at the end of 1988. While not a Chapter 40B project because it was an adaptive reuse of a former school building, the project is an affordable multi-family rental housing development embedded in a single-family residential neighborhood and was not contested by the Town of Lexington. The town sponsored the Franklin School Conversion Committee to find an appropriate use for the site. The committee determined that there was a critical need for more affordable rental housing in Lexington at that the Franklin School site was an ideal location for this type of housing.

In some ways, comparing Franklin School Apartments to the other developments in the study is trying to compare apples to oranges. However, it is useful to examine successful, supported projects in comparison to highly opposed developments to see what works and what does not from the standpoint of garnering public support and good will. Three particular characteristics of Franklin School contributed to the project's lack of significant opposition.

First, Franklin School was an existing building and the developer mainly changed the land use of the site. Some new buildings were constructed to the side and behind the school building, but overall the site looked the same as before and the project did not contribute to significant change in the site's character. Second, Lexington went to great lengths to respond to concerns and opinions identified in the housing needs survey and shaped their advocacy and support for the project through the context of the survey findings. The town sought to fulfill its obligation to provide much needed affordable housing for young families, a declining population in the town, one of the reasons Franklin School had to close in the first place. Finally, the project is comparatively very small; at just 38 units it has significantly less units than the rest of the developments in the study. In fact, Littleton Green, with only 24 units, is the only project in the study smaller than Franklin School.

Community Context

With a 2000 median income of nearly $97,000, Lexington has not only the highest median income in the study by over $20,000; it is also one of the most affluent communities in the state. Located only 11 miles northwest of Boston and home to 30,000 residents, Lexington has been able to maintain a relatively low density of less than 1.1 housing units per acre. A largely single-family residential community, Lexington's housing stock is 83 percent owner-occupied and only 2 percent vacant according to the 2000 census. Roughly 33 percent of the owner-occupied housing in the town does not have a mortgage, the second highest percentage of un-levered homes in the study. Lexington's single-family house prices have *increased by over 140 percent* in the last ten years, with a median sales price of $615,000 for a single-family home in 2003, the highest price in the studied communities by $130,000. The cost of renting in Lexington is also expensive; in 2000 the town's median gross rent was $1,288, by far the highest median rent in the study.[35]

Nature of Proposed Development

While not officially a Chapter 40B development, the Franklin School Apartments in Lexington did receive a "Special Permit" to override the existing zoning of the site which was occupied by a former school. The school was closed because of a major decline in the number of children in Lexington, in the mid-1980s only about one-third of the households in the town were families with children. According to a committee responsible for overseeing

the conversion of the school to a new use, this small fraction of families with children was due partly to declining birth rates, and also the rising cost of housing which had priced young families out of Lexington.

Developed by the Greater Boston Community Development Corporation, now known as The Community Builders, the nearly $3 million project consists of 38 units of housing, 10 are affordable to "low-income tenants," defined as persons who are eligible to participate and/or receive rental assistance vouchers, and 28 "moderate income units," for households whose gross income does not exceed 120 percent of the area median income. Franklin School Apartments' unit mix is evenly distributed among one-, two-, and three-bedroom apartments serving families with children as well as individuals.

The neighborhood surrounding Franklin School consists of a junior high school, 140 acres of conservation land, a small farm, and relatively large lot single-family homes. The development is just 0.5 miles north of Route 2. Franklin School's neighborhood and site context are shown in Figures 7.28 and 7.29.

Figures 7.28, 7.29 Franklin School Apts Aerial and Site Photographs

Opposition Overview

Lexington's Planning Board's Advisory Committee on Housing Needs performed a Housing Opinion Survey in 1984 to determine town residents' feelings with respect to affordable housing. The overwhelming majority of respondents believed that the town should play an active role in providing affordable housing, and that the town should use their resources such as land or surplus municipal buildings for affordable housing. However, when density entered the scenario, respondents were not as supportive. Less than half of the respondents would support a "well-designed proposal" that had a density of six to nine units per acre, a quarter of the respondents said no outright. There were also a large number of maybe responses, which "perhaps indicates a wait and see attitude towards specific proposals as they come in" according to the study report. Some of the concerns regarding apartments and condominiums were density, the appearance of the buildings, impact on traffic, and concentration in one location. Notably, although given as an option in the survey, the proximity and transition to nearby single-family houses was not identified by respondents as a serious concern. This led the committee to infer that "one is led to believe that higher densities are acceptable if they occur as a result of conversion of municipal buildings, or are to provide for the elderly. New construction of multi-family rental apartments is not as acceptable, nor are two-family houses."

In the Fall of 1984, the Franklin School Conversion Committee reviewed a number of development scenario proposals including: educational/cultural/religious projects, proposals for congregate housing, condominiums, and rental housing. One of the rental proposals was from the Greater Boston Community Development Corporation which, according to the committee, offered the town the greatest degree of involvement in the provision of housing for both low and moderate income residents.

The Conversion Committee's first choice for re-use of the school building was a conversion to family housing. They felt that the school was a particularly good place for family housing for a number of reasons. First, a large number of Town Meeting members view favorably the use of converted school buildings for housing for middle and low/moderate income people. (The housing survey results indicated that the use of school buildings and tax-title lots were the two most favored ways of providing such housing). Second, the location

for family housing is "excellent," the site is in a very low density neighborhood, where there are no other publicly assisted housing units. It abuts 140 acres of conservation land, a junior high school, has ample recreation space, and good access to public transit and employment. Finally, "the structure itself is attractive and would make attractive housing at moderate density. Since the building cannot be significantly altered or enlarged, the number of housing units that could be accommodated would be limited, and could not overwhelm either the site or the neighborhood." In other words, the project would be relatively small in scale and not contribute to a major change in the character of the neighborhood. The committee also strongly recommended mixed-income rental as opposed to ownership housing because of the town's very low percentage of rental housing. The committee's recommendation concludes with the following comment regarding the real need for this project to be developed as affordable housing and it being the perfect time to make the development happen:

> The Franklin School site is an excellent opportunity to act on our stated housing policy. The creation of affordable housing doesn't just happen. It must be made to happen by seizing appropriate opportunities as they arise. Missed opportunities cannot be made up for elsewhere, since we are rapidly running out of appropriate locations. One must always ask the questions, if not here, where? And if not now, when?

In November 1984, the Planning Board's Advisory Committee on Housing Needs wrote a letter to the Selectmen in support of the development of Franklin School site for affordable housing. They deemed the site "an excellent one for affordable family housing." They also noted that this adaptive reuse project would likely garner a great deal more support than new construction of rental units, which would likely pose more problems for town residents. The Housing Needs Committee recommended the Greater Boston Community Development (GBCD) proposal for the site, stating that it "will meet the needs of a wider range of families. It is, after all, families with children that have the hardest time finding housing in Lexington."

Lexington residents voted to approve the sale of the Franklin School property to GBCD at the Annual Town Meeting in May of 1985. More than two-thirds of the meeting attendees voted in favor of the sale, a victory for going forward with the sale, but not an overwhelming endorsement by town residents for the proposed project.

In October 1985, the Planning Board recommended granting of the special permit to the Town Selectman for the Franklin School project. They noted that over the past five years, only

24 subsidized family housing units had been built in Lexington and there is a real need for more affordable rental housing in the town. The board also reiterated the conversion committee's comments that the site is an ideal location for mixed-income rental housing. Additionally, the Planning Board took care to note that the project would not be adding affordable units to a neighborhood that already had low-income housing: "this location is well removed from any other publicly supported housing and would contribute to a greater dispersion of publicly supported housing units in the town."

At the Town Selectmen's Meeting on October 23, 1985, the Selectmen reviewed the recommendations and concerns townspeople had regarding the Franklin School project. As was previously stated, the Planning Board unanimously recommended the granting of the special permit. The Board of Health, and Building, Engineering, and Planning Departments, however, did have a number of concerns, including rodent control, asbestos and lead paint in the school building, height of the townhouse buildings, parking provisions, drainage, sewer connections, utility connections for the rear part of the site, and trash disposal. Although many of these issues are assuredly valid, explicit mentions of rodent and trash concerns seem to be specifically motivated by the project's affordability component.

Also noted at the hearing was that changes to the site plan, architectural scheme, and access to the recreation area and conservation land had been made in response to neighborhood input. Abutters did have additional concerns regarding the project and at the hearing spoke about issues such as the landscaping, site lighting, screening between the site and surrounding homes, building facades, driveway entrances, on-street parking, methods of trash disposal, and traffic.

The decision regarding the special permit for the Franklin School project was finalized at the October Selectmen's meeting. The decision notes that the town had already voted and approved the sale of the property to the developer, there will be incidental changes to the façade of school building, and the new construction will be located substantially within the footprint of the structures to be demolished. The Selectmen found that the "Proposed Conversion will construe a suitable development and will not result in substantial detriment to the neighborhood." Additionally, they commented that the conversion of the school building "will be a practical residential development, compatible with the neighborhood, and will create

in the neighborhood economically priced and a variety of housing." The special permit would serve the public welfare of the town and is "in harmony with the general purpose and intent of the Zoning By-Law." The Board unanimously granted the permit with 12 conditions including detailed landscaping plans with "visual screening" between the development and the surrounding area, trash storage and parking provisions, and façade materials.

Opposition Conclusions

While the Franklin School project did not face overt opposition, it was not without any conflict. Lexington residents and municipal officials did have a number of concerns with respect to the development. Many of these concerns were similar to those voiced during the permitting process of the other studied projects, including drainage, sewer connections, traffic, and parking. However, there were some issues raised in Lexington that were new to hear such as a fear of rodent problems and worry over trash disposal. These seem to be motivated by traditional misconceptions and stereotypes of affordable housing. It would be hard to believe that residents would have similar concerns if the development consisted of luxury condominiums or elderly housing. However, the opposition in no halted or delayed the granting of the special permit for Franklin School Apartments.

Interestingly, the Franklin School development density is approximately 11.7 units per acre, more than ten times the town average of 1.07 units per acre, and the proposed density in the housing needs survey which received significant negative feedback from survey respondents. One would think there would have been some resident opposition with respect to density, but that was not found in any of the research.

Lexington was able to be proactive in seeking an appropriate site and scale of project for affordable multi-family housing likely stemming whatever opposition to development that might have been raised with other 40B projects. Additionally, the Franklin School developer made significant changes to the development's site plan, design, and access in response to community input.

LITTLETON GREEN, LITTLETON

It is also interesting to examine the lack of community opposition for the Littleton Green development in light of the town's opposition to Pondside at Littleton, just a mile down the

road from Littleton Green. There are some significant characteristics of Pondside and Littleton Green that likely led the town to oppose one and not the other. Although Littleton Green is a 100 percent affordable development, it also provides a needed, sympathetic service for the town - elderly affordable housing. Finally, with only 24 units of housing, Littleton Green is by far the smallest development in the study, and 66 units less than the size of Pondside. Littleton Green received its comprehensive permit in 1986 after three short ZBA hearings.

For a number of reasons, Littleton Green was also not a contentious development compared to the other projects in the study. Like Franklin School, it is somewhat akin to comparing apples and oranges to evaluate this relatively benign 24 unit elderly housing project in contrast to a 200-unit multi-family development with six or seven four-story buildings. Additionally, the fact that the project serves elderly housing needs makes it significantly more sympathetic to town residents and officials, it serves a specific uncontroversial target group and that particular group is not likely to generate added costs to the town with respect to increased traffic and school impact concerns. Furthermore, the Littleton Green comprehensive permit application came to the ZBA shortly before Pondside and two other 40B proposals, Littleton had yet to face numerous permit requests and deal with concerns and plans for long term growth and development priorities for the town.

Nature of Proposed Development[36]

Littleton Green is a 24 unit, 100 percent affordable elderly housing development. The project was granted a comprehensive permit in May of 1986 after three Board of Appeals hearings at which some questions and concerns regarding the development were raised, but not enough to halt or stall the development process. The project received financing through the Rural Housing Service Section 515 program, the principal funding program for rural multifamily housing serving low income persons. Littleton Green consists of three buildings with eight one bedroom units per building. The neighborhood surrounding the project is made up of primarily single-family homes. Figures 7.30 through 7.32 show the neighborhood and site context for Littleton Green.

Opposition Overview

There was no substantive resident or town opposition to the Littleton Green development likely due to the project's small scale and elderly focus. However, a number of concerns were

Figures 7.30 - 7.32 Littleton Green Aerial and Site Photographs

raised during the comprehensive permitting process regarding primarily the environmental impact of the development on the surrounding community. Additionally, despite the project's lack of controversy, it still took over six months from the initial application submission to get final approval from the Board of Appeals.

The first hearing on Littleton Green occurred in January of 1986. Attempting to appease residents and board members with the idea that the development would not be straight affordable housing, the developer touted the project as housing for "moderate income senior citizens" and that "the project is to have more flexibility in regard to eligibility than low income housing per se does." Additionally, the developer had conducted a survey "which had one hundred responses from elderly and the results were that there is an interest for this type of housing for Littleton, which still does not have the state mandated minimum number of [affordable] units." Hearing attendees did raise some concerns regarding Littleton Green which included water and drainage on the site and sidewalk connections. Additionally, the Littleton Housing Authority commented that they were not in a position to either endorse or oppose the project. The hearing ended with the ZBA requesting the opinion of other town boards prior to the next meeting.

The second Littleton Green hearing occurred in February 1986. At the hearing, a letter from the Planning Board commented that they would like the project to conform to the town's site plan review. In addition, one planning board member came to the hearing and spoke about concerns in regard to the screening between the development and surrounding neighborhood and problems with the driveway. Littleton's Council on Aging wrote a letter of support to the project's concept but stated that they were unable "to take a stand on this project at this time." However, the council did express the need for moderate income housing in Littleton. A representative of the Littleton Housing Authority curiously said that "the Authority does not approve of Guschov's [the developer] methods, but it approves of such housing," and concluded that "basically the Authority is in favor of the project." More concerns were raised about sidewalks, the driveway exit, and flooding problems in the surrounding neighborhood. ZBA members also discussed extending affordability to 40 years as a condition of the comprehensive permit as opposed to the 15 years required by the proposed financing for the development.

The third and final hearing on Littleton Green occurred in March 1986. After a discussion of adding future parking spaces and integrating requirements from the Board of Health, the Board of Appeals granted the comprehensive permit unanimously "incorporating the regulations and restrictions as discussed."

The comprehensive permit, dated May 5, 1986, found that the "Petitioner's proposed project, if developed in accordance with the aforementioned and other conditions hereafter recited, will comply with the requirements of Chapter 40B. It will meet the concerns of the appropriate municipal officials with respect to health and safety, site and building design and open space. It will also alleviate the local and regional need for low [and] moderate income housing in the Town of Littleton." They unanimously granted the permit for 24 units at proposed site with 11 conditions, including evidence of compliance with financing requirements, final site plan approval, and provisions for more future parking spaces. Interestingly, omitted from the conditions was a provision for increasing the affordability term from 15 years to 40 years as was discussed at the February hearing.

Opposition Conclusions

As was the case with the Franklin School project and other less controversial 40B

developments, by granting the comprehensive permit without outside intervention, Littleton was able to really negotiate to incorporate their wants and needs into the development plan for Littleton Green. They guaranteed themselves final site plan approval and development oversight. If the permit had been denied and the developer appealed the decision to the HAC, Littleton would have lost some of its leverage in the development process as well as put the town and developer on opposing sides.

While the residents and municipal officials of Littleton did not strongly contest the comprehensive permit for Littleton Green, especially as compared to the opposition to Pondside at Littleton as discussed in the previous section, a number of concerns regarding the project were raised during the permit hearing process. Some of these concerns were about pre-existing problems with flooding in the neighborhood and the potential for the project's drainage plan to exacerbate the situation, whether or not enough parking was provided in the site plan and prescriptions for additional parking in the future, and the length of time the development's units would remain affordable. Interestingly, questions and concerns regarding the term of affordability were raised during the Pondside permit hearings as well.

There is also a somewhat contradictory relationship between the lack of opposition to Littleton Green and the community's characteristics. The density of the project is 10 units per acre, significantly higher than the town's average density of 0.3 units per acre, and also higher than the density of Pondside. However, this was never raised as an issue in any of the comprehensive permit hearing minutes. Additionally, with a slow growth rate, highly-leveraged owner-occupied housing stock, and an almost entirely white population, one would think this community would be highly likely to oppose all 40B development, but this was not the case.

(Endnotes)

[1] *Wellesley ZBA v. HAC*, 1982.

[2] DHCD Community Profile, U.S. Census, The Warren Group Town Statistics. Please see Appendix 7.1 for a detailed chart which includes the pertinent data cited in all the "Community Context" sections.

[3] Letter from the Planning Board to the Burlington Zoning Board of Appeals, re: Proposed Pheasant Ridge Comprehensive Permit, dated August 16, 1985.

[4] The sewer connection moratorium was enacted in December, 1984 and the building moratorium was enacted in June, 1985.

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[7] Editorial, "Housing and Stonewalling," *The Boston Globe*, May 8, 1987.

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[9] Editorial, May 8, 1987.
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[12] DHCD Community Profile, U.S. Census, The Warren Group Town Statistics.
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[19] Dabilis, Andrew J., "Suburbs Put on Defensive; Affordable housing drive gains momentum with new program, but some town opposed," *The Boston Globe*, August 28, 1987.
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[21] Dabilis. August 28, 1987.
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[23] DHCD Community Profile, U.S. Census, The Warren Group Town Statistics.
[24] Real Estate Journal – New England, February 5, 2003, http://www.rejournal.com/ne/news/oldNewsDetails.asp?id=107&type=con&regg=ne.
[25] Muller, Carol J. Letter to the Housing Appeals Committee from the Woburn City Solicitor, dated January 12, 1984.
[26] *Zoning Board of Appeals of Greenfield v. Housing Appeals Committee*, 1983; *Board of Appeals of Hanover v. Housing Appeals Committee*, 1973.
[27] DHCD Community Profile, U.S. Census, The Warren Group Town Statistics.
[28] DHCD Community Profile, U.S. Census, The Warren Group Town Statistics.
[29] Massachusetts 760 CMR 49.00, Regulation Governing the Massachusetts Rental Voucher Program, http://www.state.ma.us/dhcd/regulations/760049.htm
[30] This information was gleaned from informal discussions with Mansfield zoning and planning officials regarding Mansfield Depot in February of 2004.
[31] DHCD Community Profile, U.S. Census, The Warren Group Town Statistics.
[32] Massachusetts 760 CMR 49.00, Regulation Governing the Massachusetts Rental Voucher Program, http://www.state.ma.us/dhcd/regulations/760049.htm
[33] Hanson, Fred. "Developer accuses board of stalling," *The Patriot Ledger*, June 12, 1987.
[34] Hanson, June 12, 1987.
[35] DHCD Community Profile, U.S. Census, The Warren Group Town Statistics.
[36] The "Community Context" section for Littleton was described in the previous section. Please refer to the section on Pondside at Littleton for relevant characteristics of Littleton.

CHAPTER 8: CONCLUSION

This thesis asks and answers an important question in the heated debate concerning M.G.L.c. 40B, the state's Comprehensive Permit Law: "Do large-scale, high-density Chapter 40B multi-family rental developments negatively impact nearby single-family property values in suburban Boston communities?" We ask the question because of the widespread belief that one of the strongest motives for resident opposition to 40B projects is the fear that homes values surrounding these multi-family developments will decrease.

To answer this question, we performed quantitative and qualitative studies of the relationship between nine large-scale, high-density, multi-family rental 40B developments and single-family house value in eight communities throughout suburban Boston. We first used hedonic price modeling to determine the impact the 40B developments had on surrounding single-family house prices; we then performed a qualitative analysis of the resident opposition and comprehensive permitting process for these nine projects.

The result of the empirical analysis for all nine cases confirms our hypothesis that large, dense, rental multi-family 40B developments *do not* negatively impact the sales price of nearby single-family homes. The sales price indexes for the impact areas trend essentially identically with the price indexes of the control areas before, during, and after the introduction of a 40B development. Our findings are transferable to towns with similar characteristics to our case towns such as size, location, demographics, market experience, and development pattern.

Our case selection criteria identified some of the worst case scenarios of a multi-family intrusion into a single-family neighborhood. As such, the 40B projects we evaluate have the greatest likelihood for negatively impacting adjacent residences. We designed a research strategy of rigorous statistical methodology to test our hypothesis. The findings are further strengthened by our careful treatment in identifying the impact areas.

So why is it that these worst case scenarios do not negatively impact property value? When each 40B project was built, it represented the top of the market. Even though the developments are out of scale, style, and context with the surrounding neighborhood, they are generally high quality housing products. MassHousing provides site approval for all comprehensive permits and financed seven of our case studies. They have a history of

underwriting and supporting some of the best housing developments built in the Commonwealth. Furthermore, it should not be overlooked that nearly three-quarters of the housing units in our case studies are market rate. These are not just affordable housing developments; they are market rate multi-family housing with some affordable units. Finally, with restricted housing supply in the Massachusetts housing market, it is altogether possible that a home's location in a particular community is more important than its neighborhood.

The reasons for opposition that have weight and bearing on the comprehensive permit decision do not allow for property value concerns. Fear of property devaluation is not a tractable issue to use as the basis for the denial of a comprehensive permit. A local board of appeals may only deny a comprehensive permit if they can prove that the decision is reasonable, consistent with local needs, and the development will cause health, safety, environmental effects that outweigh the need for low and moderate income housing. Therefore, it is not surprising that we did not find evidence in the primary sources of this fear even if it is tangible to residents and motivates opposition.

However, we did discover an interesting and important story. The comprehensive permitting process often creates a contentious climate, particularly when towns have not adequately planned for new development. The 40B process can be conceptualized in terms of three stages: Stage 1 – introduction of development; Stage 2 – comprehensive permit debate; Stage 3 – final permit decision. The three stage process was formulated with respect to the highly contentious developments. With the highly contentious developments, developers and towns were often set against one another from the beginning. Stage 2 occurred with towns frequently feeling that 40B was taking away their power to control land use. With these developments, developers did not hesitate to pursue litigation in the event of a permit denial, setting up a highly contentious stage 3. This process left the towns with large-scale, dense multi-family developments in which they had little say, and left the developers with a controversial, costly, and lengthy process.

Between the highly contentious and contentious projects there was a significant shift in the three stage paradigm where the emphasis was placed on negotiation and bargaining in stage 2 rather than contention, stand-off, and an expensive, drawn-out stage 3. The contentious projects ultimately received their comprehensive permits from the local ZBAs, as opposed to

the courts, and the towns were able to leverage their control over the permitting process to negotiate for such things as a more amenable project design, density, and affordability ratio. In return, the developers were able to have their projects approved and permitted in a significantly shorter time frame.

Finally, with the unopposed developments, by granting the comprehensive permit without outside intervention, the towns were able to really negotiate to incorporate their wants and needs into the development plans. They guaranteed themselves final site plan approval and development oversight. The municipalities were able to reframe the context in which the developments received the comprehensive permit, altering stage 1 and creating a whole new paradigm. If the comprehensive permits had been denied and the developers appealed the decisions to the HAC, the towns would have lost their leveraging power and put the two parties on opposing sides. This new paradigm establishes an alternative 40B process where towns actively seek out appropriate sites, uses for the site, and developers. This new process can lead to the creation of developments with less opposition, permit them more quickly, and help alleviate the severe housing crunch in the state.

Chapter 2 discusses how exclusionary zoning, politically autonomy, and the rise of homeownership have contributed to creating a climate where multi-family housing development in the suburbs is increasing difficult. The motivation for keeping this type of development out is the belief that these projects will diminish or reduce property values. As was stated in the literature review, one of the primary motivations for exclusionary zoning regulations is to avoid the negative effects of poverty and the fears that affordable housing could cause neighborhood decline. Suburbanites control for this fear by banning multi-family housing and only permitting large lot single-family homes. Furthermore, the suburbs used their increased political autonomy and clout as a means of protecting property values. In the strong home rule state of Massachusetts, where there is often rabid protest of Chapter 40B development, it could be argued that there is also a commonly held, but often not explicitly stated, assumption of the negative impact of 40B developments on surrounding property values.

The thesis results are timely today, given extraordinary increases in home values that have occurred. With recent very high single-family home price appreciation rates, the view of a home as an investment good has become much more prevalent and many people now

see their home as a major contribution to their retirement fund. The notion that a 40B multi-family development could negatively impact this nest egg most likely contributes to residents' concerns and protests regarding new development. This study dismisses the misplaced fear of property devaluation. Chapter 40B developments do not reduce the sales price a single-family houses, so the investment returns of a homeowner's largest portfolio asset is not threatened.

APPENDIX 4.1: WARREN GROUP INFORMATION

The Warren Group
http://rers.thewarrengroup.com/sor/help/aboutourdata.asp

Data Sources
The Warren Group's real estate sales database is comprised of public records from government sources. Sales and mortgage transactions with a consideration of $1000.00 or more are collected weekly from Registries of Deeds in Massachusetts and Town Clerks' offices in Connecticut and Rhode Island. Property ownership records are acquired from municipal assessor's offices in Massachusetts, Connecticut and Rhode Island. Sales and mortgages are collected then enhanced with property characteristics.

Database Description
We integrate the information from these sources and enhance it during processing to produce a comprehensive property database that has Massachusetts sales since 1/1/87, Connecticut sales since 1/1/87, and Rhode Island sales since 7/1/87. Property ownership records are available for a majority of Massachusetts, Connecticut and Rhode Island communities. Standardized formats for names, addresses, property use codes, and property characteristics are applied across all three states

Deeds and Mortgages
For sales and mortgage transactions, we collect:
-property address (if available)
-buyer and seller names
-purchase price ($1000.00 or more)
-mortgage lender and amount ($1000.00 or more)
-filing date & deed reference
-mortgage type, term, & interest rate for Connecticut

Assessor Records
Property characteristics taken from assessor files vary by town and depend greatly on the amount of detail available in the source files. Massachusetts and Rhode Island use Legal and Detail files. Connecticut uses Grand List and Detail files.
1. Legal files contain the property address, owner names and mailing addresses, property use, map ID, lot size, and assessed values. We calculate property taxes by applying the tax rate to the total assessed value and do not consider any type of exemption in the calculation of the taxes.
2. Grand List files contain the property address, owner names and mailing addresses, property use category, map ID, and assessed values. We calculate property taxes by applying the tax rate to the total assessed value and do not consider any type of exemption in the calculation of the taxes.
3. Detail files contain the same ownership and value data as above plus room counts, living area, and building style. In some communities there are additional details about heat, fuel, roof and basement types, roof material and exterior cover types, and amenities such as parking type, porch type, presence of air conditioning and swimming pools, etc. See Geographic Coverage for the type of file we have in your towns.

Addresses

Street names are standardized using the U.S. Post Office standards. All directionals such as "North," "South," "East," and "West" are abbreviated by their first letter whether the directional precedes the street name, as in North Main St (N Main St), or follows the name as in Blue Hill West (Blue Hill W).

Condo unit numbers defy standardization. Sometimes the unit, building, and floor numbers are found in both the street number and unit number. Carefully examine these data when trying to locate a specific condo unit.

Condo units are typically listed by street address as opposed to the condominium complex's name. If the public record indicates a condo name instead of street address, then the condo name will be used in the 'street name' field.

Data Processing

Every week we match the sales and mortgage data to the property records based on property address and names of the seller and owner. If, for some reason, we are not certain that the two records are the same parcel, then we will not match that sale or mortgage to that property record. As a result, some sales or mortgages will not have any property characteristic information. This happens most often when lots are combined and subdivided for construction and when property addresses are not clear on the deed.

APPENDIX 5.1: VARIABLE DEFINITIONS

Variable Definitions	
lnprice	natural log of prive
lntersf	interior square feet
lotsize	lot size
bath<=1	houses with one or less bathrooms
bath1	houses with one bathroom
bath<=1.5	houses with one and a half or less bathrooms
bath1.5	houses with one and a half bathrooms
bath2	houses with two bathrooms
bath>=2	houses with two or more bathrooms
bath2.5	houses with two and a half bathrooms
bath>=2.5	houses with two and a half or more bathrooms
bath>=3	houses with three or more bathrooms
bed<=2	houses with two or less bedrooms
bed2	houses with two bedrooms
bed<=3	houses with three or less bedrooms
bed3	houses with three bedrooms
bed4	houses with four bedrooms
>=4	houses with four or more bedrooms
>=5	houses with five or more bedrooms
yrblt<=1946	houses built in 1946or older
yrblt<=" "	houses built in this year or older
yrblt1947-'55	houses built between 1947 and 1955
yrblt" "	houses built between this timeframe
yrsold1983-'84	houses that sold in years 1983 and 1984
yrsold" "	houses that sold in this time interval

APPENDIX 5.2: WOBURN

Descriptive Statistics - Woburn										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*4,762*	*157*	*188,250*	*195,064*	*86,583*	*80,874*	*10,000*	*57,500*	*620,000*	*427,500*
Intersf	*4,762*	*157*	*1,471*	*1,561*	*486*	*433*	*288*	*720*	*4,300*	*3,728*
lotsize	*4,762*	*157*	*11,774*	*12,138*	*5,889*	*6,592*	*1,096*	*4,500*	*46,609*	*58,370*
Bathrooms	*4,762*	*157*	*1.61*	*1.61*	*0.61*	*0.62*	*1.00*	*1.00*	*5.00*	*4.00*
1	**1,801**	**58**								
1.5	1,086	39								
2	1,133	40								
>=2.5	742	20								
Bedrooms	*4,762*	*157*	*3.18*	*3.36*	*0.78*	*0.78*	*1.00*	*2.00*	*8.00*	*7.00*
<=2	**697**	-								
3	2,746	-								
<=3	-	**107**								
>=4	1,319	50								
Year Built	*4,762*	*157*	*1946*	*1935*	*40*	*54*	*1695*	*1730*	*2002*	*2000*
<=1919	**931**	-								
1920-59	2,041	-								
1960-79	861	-								
1980-89	447	-								
1990-03	482	-								
<=1899	-	**30**								
1990-46	-	30								
1947-54	-	33								
1955-90	-	32								
1991-03	-	32								
Year Sold	*4,762*	*157*	*1995*	*1995*	*6*	*5*	*1983*	*1983*	*2003*	*2003*
1983-'84	206	4								
1985-'86	**238**	**8**								
1987-'88	424	12								
1989-'90	338	15								
1991-'92	438	7								
1993-'94	524	12								
1995-'96	572	14								
1997-'98	610	40								
1999-'00	606	22								
2001-'02	492	14								
2003	314	9								

Bold Independent variables are base case (omitted)

Price Index Matrix - Woburn						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1983-'84	79,470	-		77,623	-	
1985-'86	138,796	74.7%	23.8%	119,815	54.4%	25.9%
1987-'88	150,956	8.8%		155,013	29.4%	
1989-'90	173,169	14.7%	7.1%	152,018	-1.9%	-1.0%
1991-'92	154,820	-10.6%		135,587	-10.8%	
1993-'94	132,839	-14.2%		139,849	3.1%	
1995-'96	124,172	-6.5%		150,432	7.6%	
1997-'98	172,573	39.0%		166,427	10.6%	
1999-'00	230,466	33.5%	20.8%	211,772	27.2%	18.2%
2001-'02	304,069	31.9%		275,158	29.9%	
2003	351,765	15.7%		328,197	19.3%	
CAGR	14.5%			14.0%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+…), source for price indexes

**Analysis Period Compound Annual Growth Rate, (Current Value/Past Value)^(1/years)-1

APPENDIX 5.3: BURLINGTON

Descriptive Statistics - Burlington										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*4,226*	*70*	*209,673*	*169,934*	*97,805*	*59,773*	*20,000*	*50,000*	*850,000*	*310,000*
Intersf	*4,226*	*70*	*1,864*	*1,974*	*643*	*550*	*640*	*884*	*8,911*	*3,075*
lotsize	*4,226*	*70*	*20,691*	*20,629*	*11,865*	*2,337*	*2,178*	*11,761*	*243,065*	*27,443*
Bathrooms	*4,226*	*70*	*1.78*	*1.91*	*0.66*	*0.59*	*1.00*	*1.00*	*5.50*	*3.50*
1	**1,054**	**10**								
1.5	1,180	17								
2	973	26								
>=2.5	1,019	17								
Bedrooms	*4,226*	*70*	*3.23*	*3.34*	*0.70*	*0.78*	*1.00*	*1.00*	*8.00*	*5.00*
<=2	**361**	-								
3	2,709	-								
<=3	-	**47**								
>=4	1,156	23								
Year Built	*4,226*	*70*	*1962*	*1967*	*21*	*15*	*1732*	*1945*	*2001*	*2001*
<=1954	**733**	-								
1955-'64	1,906	-								
1965-'78	859	-								
1979-'92	489	-								
1993-'03	239	-								
<=1955	-	**14**								
1956-'58	-	17								
1959-'60	-	16								
1961-'83	-	11								
1984-'03	-	12								
Year Sold	*4,226*	*70*	*1994*	*1992*	*6*	*5*	*1982*	*1983*	*2003*	*2003*
1982-'83	147	4								
1984-'85	**191**	**6**								
1986-'87	337	6								
1988-'89	376	8								
1990-'91	339	4								
1992-'93	453	16								
1994-'95	498	8								
1996-'97	493	5								
1998-'99	478	8								
2000-'01	418	3								
2002-'03	496	2								

Bold Independent variables are base case (omitted)

Price Index Matrix - Burlington						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1982-'83	91,009	-		76,206	-	
1984-'85	126,351	38.8%		110,228	44.6%	
1986-'87	150,904	19.4%	12.1%	157,061	42.5%	16.1%
1988-'89	177,771	17.8%		172,555	9.9%	
1990-'91	170,884	-3.9%		159,202	-7.7%	
1992-'93	148,514	-13.1%		158,249	-0.6%	
1994-'95	139,860	-5.8%		167,307	5.7%	
1996-'97	186,135	33.1%		182,916	9.3%	
1998-'99	182,820	-1.8%		221,139	20.9%	
2000-'01	253,069	38.4%		283,962	28.4%	
2002-'03	272,483	7.7%		353,277	24.4%	
CAGR	10.5%			15.0%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate, (Current Value/Past Value)^(1/years)-1

APPENDIX 5.4: LEXINGTON

Descriptive Statistics - Lexington										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*6,351*	*64*	*383,807*	*393,076*	*235,005*	*216,959*	*26,000*	*10,081*	*2,800,000*	*1,037,500*
Intersf	*6,257*	*64*	*2,001*	*2,139*	*891*	*1,021*	*448*	*914*	*8,802*	*5,783*
lotsize	*6,257*	*64*	*18,140*	*27,408*	*11,610*	*47,719*	*2,200*	*5,965*	*69,696*	*384,199*
Bathrooms	*6,257*	*64*	*2.14*	*2.06*	*0.83*	*0.75*	*1.00*	*1.00*	*7.00*	*5.00*
1	**891**	**8**								
1.5	1,381	13								
2	1,138	19								
2.5	1,859	19								
>=3	988	5								
Bedrooms	*6,257*	*64*	*3.46*	*3.39*	*0.87*	*0.81*	*1.00*	*2.00*	*9.00*	*5.00*
<=2	**593**	**5**								
3	2,937	37								
4	2,137	14								
>=5	590	8								
Year Built	*6257*	*64*	*1949*	*1960*	*33*	*29*	*1668*	*1880*	*2002*	*2000*
<=1929	**1,230**	**11**								
1930-'49	1,081	12								
1950-'61	2,153	8								
1962-'88	1,203	20								
1989-'03	590	13								
Year Sold	*6257*	*64*	*1994*	*1994*	*6*	*6*	*1983*	*1983*	*2003*	*2003*
1983-'84	270	3								
1985-'86	287	4								
1987-'88	**627**	**10**								
1989-'90	533	8								
1991-'92	636	3								
1993-'94	714	4								
1995-'96	727	7								
1997-'98	766	5								
1999-'00	703	9								
2001-'02	669	5								
2003	325	6								

Bold Independent variables are base case (omitted)

Price Index Matrix - Lexington						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1983-'84	130,975	-		136,212	-	
1985-'86	251,596	92.1%	35.3%	213,952	57.1%	25.8%
1987-'88	324,336	28.9%		271,258	26.8%	
1989-'90	294,490	-9.2%		277,303	2.2%	
1991-'92	242,923	-17.5%		263,924	-4.8%	
1993-'94	293,337	20.8%		284,808	7.9%	
1995-'96	318,243	8.5%		312,257	9.6%	
1997-'98	385,776	21.2%		358,731	14.9%	
1999-'00	444,822	15.3%		452,156	26.0%	
2001-'02	566,471	27.3%		580,435	28.4%	
2003	809,155	42.8%		664,730	14.5%	
CAGR	18.0%			15.5%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate,
(Current Value/Past Value)^(1/years)-1

APPENDIX 5.5: LITTLETON

Descriptive Statistics - Littleton

	N			Mean			Std. Dev.			Min.			Max.		
Variable	Control	LG	PS	Control	LG	PS	Control	LG	PS	Control	LG	PS	Control	LG	PS
Price	*2,031*	*57*	*117*	*213,779*	*177,051*	*179,698*	*118,143*	*68,013*	*94,639*	*18,000*	*62,000*	*40,000*	*750,000*	*370,000*	*490,000*
Intersf	*2,031*	*57*	*117*	*1,866*	*1,601*	*1,945*	*708*	*420*	*752*	*390*	*868*	*894*	*5,888*	*2,342*	*3,760*
lotsize	*2,031*	*57*	*117*	*46,663*	*12,984*	*43,594*	*92,369*	*1,951*	*36,533*	*2,178*	*10,019*	*9,583*	*2,958,595*	*16,988*	*153,767*
Bathrooms	*2,031*	*57*	*117*	*1.79*	*1.44*	*1.77*	*0.68*	*0.54*	*0.68*	*0.50*	*1.00*	*1.00*	*4.50*	*2.50*	*3.50*
1	-	-	**37**												
<=1	**655**	-	-												
<=1.5	-	**38**	-												
1.5	330	-	24												
2	390	-	20												
>=2	-	19	-												
>=2.5	656	-	36												
Bedrooms	*2,031*	*57*	*117*	*3.11*	*2.77*	*3.13*	*0.83*	*0.42*	*0.45*	*1.00*	*2.00*	*2.00*	*8.00*	*3.00*	*4.00*
<=2	**401**	-	-												
2	-	**13**	-												
3	1,018	44	-												
<=3	-	-	**97**												
>=4	612	-	20												
Year Built	*2,031*	*57*	*117*	*1961*	*1954*	*1958*	*36*	*6*	*34*	*1680*	*1920*	*1800*	*2002*	*1960*	*1999*
<=1942	**403**	-	-												
1943-'55	452	-	-												
1956-'74	391	-	-												
1975-'91	399	-	-												
1992-'03	386	-	-												
<=1949	-	-	**22**												
1950-'55	-	-	19												
1956-'63	-	-	30												
1964-'85	-	-	12												
1986-'03	-	-	34												
Year Sold	*2,031*	*57*	*117*	*1995*	*1994*	*1993*	*6*	*6*	*6*	*1982*	*1982*	*1982*	*2003*	*2003*	*2003*
1982-'83	58	3	6												
1984-'85	102	3	12												
1986-'87	**124**	**5**	**10**												
1988-'89	146	6	7												
1990-'91	140	3	10												
1992-'93	237	4	10												
1994-'95	187	7	9												
1996-'97	263	6	15												
1998-'99	270	8	18												
2000-'01	262	5	10												
2002-'03	242	7	10												

Bold Independent variables are base case (omitted)

Price Index Matrix - Littleton

	Impact - Pond Side			Impact - Littleton Green			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1982-'83	87,893	-		67,421	-		68,563	-	
1984-'85	70,793	-19.5%		98,873	46.7%	30.2%	98,176	43.2%	33.4%
1986-'87	146,160	106.5%	38.6%	148,759	50.5%		162,665	65.7%	
1988-'89	188,430	28.9%		135,950	-8.6%		152,369	-6.3%	15.8%
1990-'91	172,864	-8.3%		143,048	5.2%		151,702	-0.4%	
1992-'93	156,435	-9.5%		146,461	2.4%		144,099	-5.0%	
1994-'95	148,333	-5.2%		156,406	6.8%		156,925	8.9%	
1996-'97	170,432	14.9%		143,859	-8.0%		174,376	11.1%	
1998-'99	185,718	9.0%		185,460	28.9%		204,121	17.1%	
2000-'01	294,741	58.7%		226,850	22.3%		261,035	27.9%	
2002-'03	308,740	4.7%		315,797	39.2%		328,206	25.7%	
CAGR	12.1%			15.1%			15.3%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate, (Current Value/Past Value)^(1/years)-1

APPENDIX 5.6: GROUPED ANALYSIS I

Descriptive Statistics - Group: Burlington, Lexington, Littleton, Woburn										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*17,323*	*448*	*268,811*	*207,939*	*184,313*	*115,117*	*10,000*	*40,000*	*2,800,000*	*750,000*
Intersf	*17,323*	*448*	*1,811*	*1,779*	*757*	*656*	*288*	*720*	*8,911*	*5,783*
lotsize	*17,323*	*448*	*20,992*	*20,291*	*35,709*	*15,505*	*1,096*	*4,500*	*2,958,595*	*121,532*
Bathrooms	*17,323*	*448*	*1.87*	*1.71*	*0.76*	*0.64*	*0.50*	*1.00*	*7.00*	*4.50*
<=1	**4,399**	-								
1	-	**143**								
1.5	3,976	98								
2	3,628	116								
2.5	3,758	-								
>=2.5	-	91								
>=3	1,562	-								
Bedrooms	*17,323*	*448*	*3.29*	*3.22*	*0.81*	*0.69*	*1.00*	*1.00*	*9.00*	*7.00*
<=2	**2,044**	-								
3	9,418	-								
<=3	-	**340**								
>=4	-	108								
4	4,857	-								
>=5	1,004	-								
Year Built	*17,323*	*448*	*1953*	*1951*	*34*	*40*	*1668*	*1730*	*2002*	*2001*
<=1946	**4,356**	**103**								
1947-'55	3,825	95								
1956-'74	5,201	140								
1975-'89	2,132	46								
1990-'03	1,809	64								
Year Sold	*17,323*	*448*	*1994*	*6*	*6*	*6*	*1983*	*1983*	*2003*	*2003*
1983-'84	**753**	**25**								
1985-'86	852	28								
1987-'88	1,634	48								
1989-'90	1,314	36								
1991-'92	1,669	37								
1993-'94	1,997	45								
1995-'96	2,032	39								
1997-'98	2,143	78								
1999-'00	2,073	50								
2001-'02	1,824	40								
2003	1,032	22								

Bold Independent variables are base case (omitted)

Price Index Matrix-Group: Burlington, Lexington, Littleton, Woburn						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1983-'84	91,297	-		97,919	-	
1985-'86	110,697	21.2%		155,417	58.7%	
1987-'88	171,846	55.2%	19.9%	195,904	26.1%	18.9%
1989-'90	188,573	9.7%		195,520	-0.2%	
1991-'92	142,769	-24.3%		182,785	-6.5%	
1993-'94	148,277	3.9%		187,620	2.6%	
1995-'96	160,714	8.4%		205,104	9.3%	
1997-'98	175,800	9.4%		232,186	13.2%	
1999-'00	237,035	34.8%		289,304	24.6%	
2001-'02	316,570	33.6%		380,505	31.5%	
2003	380,817	20.3%		433,646	14.0%	
CAGR	13.9%			14.5%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate,
(Current Value/Past Value)^(1/years)-1

APPENDIX 5.7: MANSFIELD

Descriptive Statistics - Mansfield										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*4,880*	*108*	*210,715*	*148,340*	*103,441*	*59,760*	*5,000*	*46,900*	*790,000*	*420,000*
Intersf	*4,880*	*108*	*1,880*	*1,450*	*633*	*352*	*388*	*882*	*5,591*	*2,952*
lotsize	*4,880*	*108*	*32,195*	*12,229*	*19,897*	*12,809*	*2,100*	*3,247*	*155,945*	*130,680*
Bathrooms	*4,880*	*108*	*1.92*	*1.38*	*0.62*	*0.41*	*1.00*	*1.00*	*4.50*	*2.50*
1	**1,018**	**46**								
1.5	990	46								
2	711	-								
>=2	-	16								
>=2.5	2,161	-								
Bedrooms	*4,880*	*108*	*3.29*	*3.14*	*0.69*	*0.55*	*1.00*	*2.00*	*7.00*	*4.00*
<=2	**472**	-								
3	2,587	-								
<=3	-	**83**								
>=4	1,821	25								
Year Built	*4,880*	*108*	*1970*	*1935*	*37*	*29*	*1735*	*1900*	*2002*	*1983*
<=1949	**855**	-								
1950-'79	1,049	-								
1980-'87	863	-								
1988-'93	1,101	-								
1994-'03	1,012	-								
<=1919	-	28								
1920	-	34								
1921-'70	-	22								
1971-03	-	24								
Year Sold	*4,880*	*108*	*1995*	*1994*	*5*	*6*	*1983*	*1983*	*2003*	*2003*
1983-'84	**115**	**9**								
1985-'86	210	5								
1987-'88	374	12								
1989-'90	400	3								
1991-'92	550	14								
1993-'94	527	12								
1995-'96	685	11								
1997-'98	638	15								
1999-'00	637	9								
2001-'02	496	14								
2003	248	4								

Bold Independent variables are base case (omitted)

Price Index Matrix - Mansfield						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1983-'84	60,401	-		119,561	-	
1985-'86	98,279	62.7%	29.3%	84,055	-29.7%	13.2%
1987-'88	130,676	33.0%		173,238	106.1%	
1989-'90	139,277	6.6%		190,328	9.9%	
1991-'92	120,835	-13.2%		175,599	-7.7%	
1993-'94	115,569	-4.4%		174,548	-0.6%	
1995-'96	126,660	9.6%		184,539	5.7%	
1997-'98	154,456	21.9%		201,756	9.3%	
1999-'00	169,102	9.5%		243,916	20.9%	
2001-'02	240,393	42.2%		313,210	28.4%	
2003	263,445	9.6%		389,663	24.4%	
CAGR	14.3%			11.3%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate,
(Current Value/Past Value)^(1/years)-1

APPENDIX 5.8: NORWOOD

Descriptive Statistics - Norwood										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*3,593*	*106*	*203,612*	*212,842*	*85,087*	*86,544*	*2,000*	*55,300*	*650,000*	*468,500*
Intersf	*3,593*	*106*	*1,522*	*1,399*	*536*	*348*	*528*	*900*	*6,725*	*2,864*
lotsize	*3,593*	*106*	*12,095*	*14,002*	*8,115*	*5,569*	*1,676*	*5,000*	*213,880*	*43,560*
Bathrooms	*3,593*	*106*	*1.66*	*1.69*	*0.59*	*0.46*	*1.00*	*1.00*	*5.50*	*3.50*
1	**1,014**	**13**								
1.5	1,255	55								
2	675	24								
>=2.5	649	14								
Bedrooms	*3,593*	*106*	*1.66*	*2.98*	*0.81*	*0.50*	*1.00*	*1.00*	*9.00*	*5.00*
<=2	**638**	**9**								
3	2,061	89								
>=4	894	8								
Year Built	*3,593*	*106*	*1946*	*1953*	*27*	*24*	*1700*	*1880*	*2001*	*1993*
<=1923	**710**	-								
1924-'49	647	-								
1950-'54	668	-								
1955-'62	863	-								
1963-'03	705	-								
<=1959	-	**36**								
1960-'65	-	58								
1966-'03	-	12								
Year Sold	*3,593*	*106*	*1995*	*1994*	*6*	*6*	*1983*	*1983*	*2003*	*2003*
1983-'84	128	4								
1985-'86	**186**	**5**								
1987-'88	323	14								
1989-'90	290	8								
1991-'92	326	10								
1993-'94	393	14								
1995-'96	347	12								
1997-'98	516	9								
1999-'00	453	11								
2001-'02	440	11								
2003	191	8								

Bold Independent Variables are base case (omitted)

Price Index Matrix - Norwood						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1983-'84	74,348	-		81,555	-	
1985-'86	137,608	85.1%	33.3%	131,841	61.7%	27.4%
1987-'88	176,029	27.9%		168,456	27.8%	
1989-'90	162,556	-7.7%		171,510	1.8%	
1991-'92	133,583	-17.8%		155,408	-9.4%	
1993-'94	149,580	12.0%		158,448	2.0%	
1995-'96	159,468	6.6%		167,635	5.8%	
1997-'98	183,428	15.0%		182,806	9.1%	
1999-'00	249,488	36.0%		221,869	21.4%	
2001-'02	284,363	14.0%		291,958	31.6%	
2003	350,746	23.3%		345,234	18.2%	
CAGR	15.1%			14.0%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate, (Current Value/Past Value)^(1/years)-1

APPENDIX 5.9: RANDOLPH

Descriptive Statistics - Randolph										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*5,839*	*124*	*157,314*	*150,425*	*68,229*	*65,902*	*10,000*	*26,000*	*475,000*	*390,000*
Intersf	*5,839*	*124*	*1,337*	*1,343*	*401*	*380*	*468*	*700*	*5,000*	*2,450*
lotsize	*5,839*	*124*	*12,098*	*13,834*	*5,216*	*6,320*	*1,742*	*5,227*	*41,818*	*47,916*
Bathrooms	*5,839*	*124*	*1.53*	*1.58*	*0.59*	*0.61*	*1.00*	*1.00*	*4.50*	*3.50*
1	**2,504**	**52**								
1.5	1,514	25								
2	991	26								
>=2.5	830	21								
Bedrooms	*5,839*	*124*	*3.03*	*3.16*	*0.69*	*0.60*	*1.00*	*2.00*	*11.00*	*7.00*
<=2	**936**	-								
3	3,911	-								
<=3	-	**99**								
>=4	992	25								
Year Built	*5,839*	*124*	*1950*	*1952*	*33*	*47*	*1734*	*1770*	*2001*	*2000*
<=1949	**1,611**	-								
1950-'79	1,679	-								
1980-'87	1,293	-								
1988-'93	902	-								
1994-'03	354	-								
<=1935	-	**31**								
1936-'65	-	33								
1966-'88	-	29								
1989-'03	-	31								
Year Sold	*5,839*	*124*	*1995*	*1995*	*6*	*5*	*1983*	*1983*	*2003*	*2003*
1983-'84	234	2								
1985-'86	**309**	4								
1987-'88	419	4								
1989-'90	391	**23**								
1991-'92	475	9								
1993-'94	695	15								
1995-'96	664	17								
1997-'98	827	14								
1999-'00	698	15								
2001-'02	722	15								
2003	405	6								

Bold Independent Variales are base case (omitted)

Price Index Matrix - Randolph						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1983-'84	84,956	-		66,517	-	
1985-'86	44,085	-48.1%		110,913	66.7%	
1987-'88	138,223	213.5%	-1.1%	142,496	28.5%	-2.4%
1989-'90	135,329	-2.1%		135,738	-4.7%	
1991-'92	118,221	-12.6%		120,188	-11.5%	
1993-'94	118,342	0.1%		116,053	-3.4%	
1995-'96	109,872	-7.2%		114,328	-1.5%	
1997-'98	122,368	11.4%		127,892	11.9%	
1999-'00	157,540	28.7%		171,997	34.5%	
2001-'02	212,373	34.8%		227,233	32.1%	
2003	264,729	24.7%		279,181	22.9%	
CAGR	10.9%			13.9%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate,
(Current Value/Past Value)^(1/years)-1

APPENDIX 5.10: GROUPED ANALYSIS II

Descriptive Statistics - Group: Mansfield, Norwood, Randolph										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*14,294*	*337*	*186,889*	*169,628*	*89,253*	*76,871*	*2,000*	*26,000*	*790,000*	*468,500*
Intersf	*14,294*	*337*	*1,565*	*1,390*	*572*	*353*	*388*	*700*	*6,725*	*2,864*
lotsize	*14,294*	*337*	*18,495*	*13,026*	*13,890*	*6,009*	*1,676*	*3,247*	*100,188*	*47,916*
Bathrooms	*14,294*	*337*	*1.70*	*1.55*	*0.63*	*0.52*	*1.00*	*1.00*	*5.50*	*3.50*
1	**4,539**	**111**								
1.5	3,762	125								
2	2,382	-								
>=2	-	101								
>=2.5	3,611	-								
Bedrooms	*14,294*	*337*	*3.14*	*3.10*	*0.73*	*0.56*	*1.00*	*1.00*	*11.00*	*7.00*
<=2	**2,051**	-								
3	8,568	-								
<=3	-	**27**								
>=4	3,675	310								
Year Built	*14,294*	*337*	*1956*	*1947*	*35*	*36*	*1700*	*1770*	*2002*	*2000*
<=1945	**3,536**	-								
1946-'59	3,448	-								
1960-'83	3,630	-								
1984-'92	2,133	-								
1993-'03	1,547	-								
<=1919	-	**59**								
1920-'51	-	75								
1952-'60	-	65								
1961-'77	-	71								
1978-'03	-	67								
Year Sold	*14,294*	*337*	*1995*	*1994*	*5*	*6*	*1983*	*1983*	*2003*	*2003*
1983-'84	**476**	**15**								
1985-'86	707	14								
1987-'88	1,117	30								
1989-'90	1,073	34								
1991-'92	1,339	33								
1993-'94	1,616	40								
1995-'96	1,693	40								
1997-'98	1,983	38								
1999-'00	1,783	35								
2001-'02	1,662	40								
2003	845	18								

Bold Independent variables are base case (omitted)

Price Index Matrix - Group: Mansfield, Norwood, Randolph						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1983-'84	68,060	-		72,351	-	
1985-'86	88,095	29.4%		120,901	67.1%	
1987-'88	158,528	80.0%	20.1%	158,959	31.5%	20.6%
1989-'90	141,530	-10.7%		153,074	-3.7%	
1991-'92	129,700	-8.4%		134,936	-11.8%	
1993-'94	131,839	1.6%		138,786	2.9%	
1995-'96	127,319	-3.4%		140,525	1.3%	
1997-'98	159,924	25.6%		160,757	14.4%	
1999-'00	187,666	17.3%		204,668	27.3%	
2001-'02	239,913	27.8%		266,589	30.3%	
2003	307,630	28.2%		321,584	20.6%	
CAGR	14.7%			14.5%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate, (Current Value/Past Value)^(1/years)-1

APPENDIX 5.11: WILMINGTON

Descriptive Statistics - Wilmington										
	N		Mean		Std. Dev.		Min.		Max.	
Variable	Control	Impact	Control	Impact	Control	Impact	Control	Impact	Control	Impact
Price	*4,431*	*70*	*201,526*	*225,817*	*89,119*	*80,090*	*26,000*	*125,000*	*701,900*	*455,000*
Intersf	*4,431*	*70*	*1,570*	*1,693*	*555*	*701*	*354*	*789*	*7,200*	*5,146*
lotsize	*4,431*	*70*	*20,702*	*25,593*	*14,499*	*8,972*	*2,200*	*9,230*	*93,654*	*62,291*
Bathrooms	*4,431*	*70*	*1.66*	*1.63*	*0.60*	*0.59*	*1.00*	*1.00*	*4.50*	*3.50*
1	**1,424**	**20**								
1.5	1,230	27								
2	910	23								
>=2.5	867									
Bedrooms	*4,431*	*70*	*3.13*	*3.26*	*0.70*	*0.50*	*1.00*	*3.00*	*7.00*	*5.00*
<=2	**556**	-								
3	2,837	**54**								
>=4	1,038	16								
Year Built	*4,431*	*70*	*1968*	*1958*	*29*	*34*	*1712*	*1720*	*2002*	*2000*
<=1949	**889**	-								
1950-'64	1,014	-								
1965-'84	703	-								
1985-'92	839	-								
1993-'03	986	-								
<=1955	-	**19**								
1956-'64	-	15								
1965-'72	-	15								
1973-'03	-	21								
Year Sold	*4,431*	*70*	*1996*	*1995*	*5*	*5*	*1987*	*1987*	*2003*	*2003*
1987-'88	**382**	**6**								
1989-'90	335	10								
1991-'92	460	9								
1993-'94	595	5								
1995-'96	648	9								
1997-'98	658	6								
1999-'00	587	12								
2001-'02	477	7								
2003	289	6								

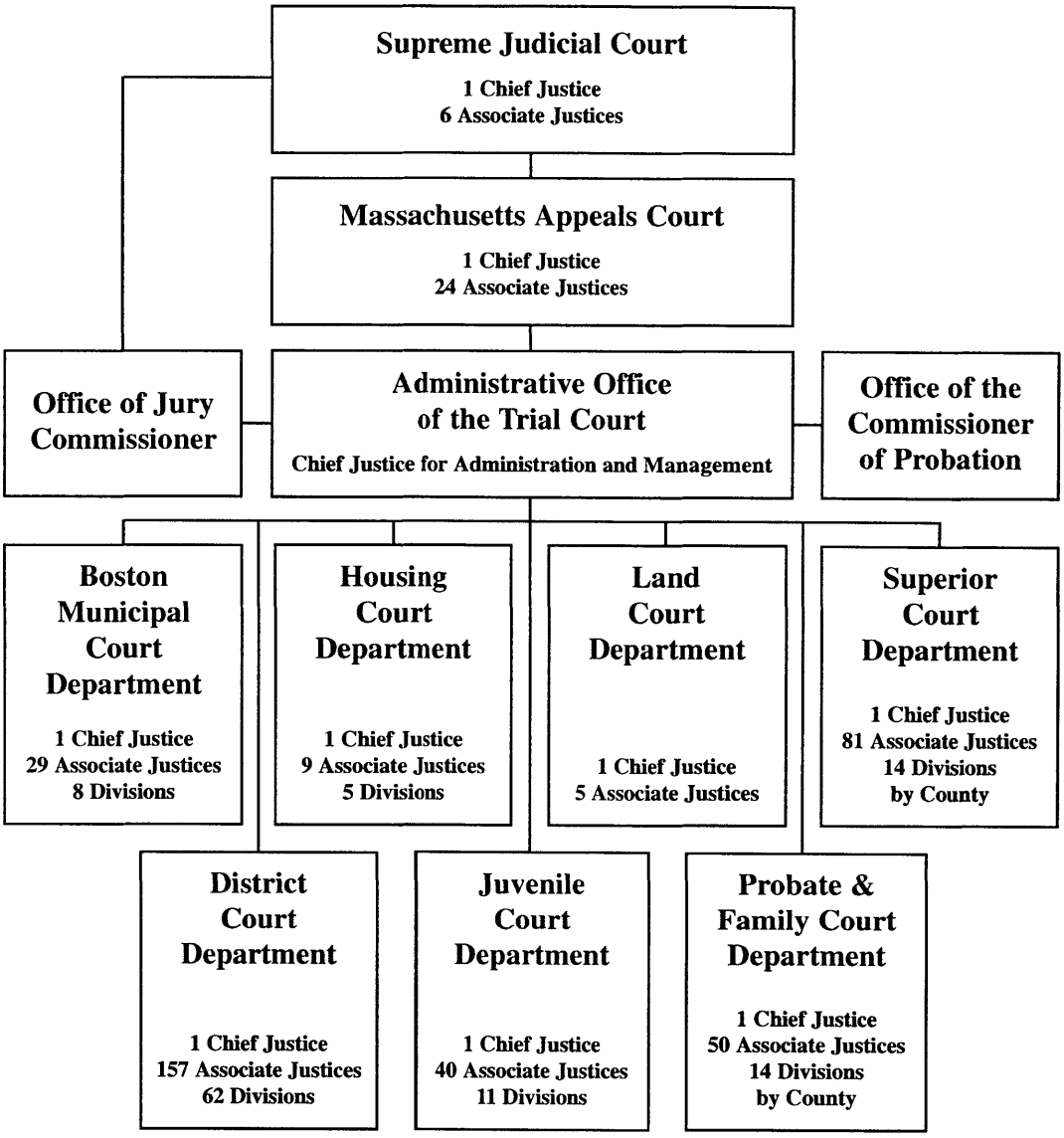
Bold Independent variables are base case (omitted)

Price Index Matrix - Wilmington						
	Impact			Control		
	Price*	% Change	APCAGR**	Price*	% Change	APCAGR**
1987-'88	186,720	-		151,245	-	
1989-'90	187,632	0.5%		154,562	2.2%	
1991-'92	162,257	-13.5%		138,138	-10.6%	
1993-'94	158,338	-2.4%		147,958	7.1%	
1995-'96	185,670	17.3%		161,472	9.1%	
1997-'98	241,900	30.3%	6.8%	174,599	8.1%	10.5%
1999-'00	226,220	-6.5%		218,052	24.9%	
2001-'02	294,430	30.2%		285,753	31.0%	
2003	391,231	32.9%		334,267	17.0%	
CAGR	8.6%			9.2%		

* Calculated with hedonic equation (price=constant+(a*βa)+(b*βb)+..., source for price indexes

**Analysis Period Compound Annual Growth Rate, (Current Value/Past Value)^(1/years)-1

APPENDIX 6.1: MASSACHUSETTS COURT SYSTEM



The number of justices for all Courts is the maximum authorized by statute; the actual number of judges varies depending on vacancies.

Source: http://www.mass.gov/courts/courtsandjudges/courts/structure_color.pdf

APPENDIX 7.1: COMMUNITY STATISTICS

	Burlington	Lexington	Littleton	Mansfield
1980 Population	23,486	29,479	6,970	13,453
1990 Population	23,302	28,974	7,051	16,568
2000 Population	22,876	30,355	8,184	22,414
Δ in Pop 1980-00	-2.6%	3.0%	17.4%	66.6%
2000 Housing Units	8,395	11,274	3,018	8,083
2002 40B units	622	796	240	577
% Affordable units	7.4%	7.1%	8.0%	7.1%
2003 Med House Price	$360,000	$615,000	$360,000	$350,000
2000 Med Income	$75,240	$96,825	$71,384	$66,925
Δ in Med House Prices 1993-03	114.9%	140.2%	147.0%	138.5%
Δ in Med Inc 1990-00	34.5%	43.7%	38.8%	42.2%
2000 Med Gross Rent	$1,061	$1,288	$680	$761
2000 Housing units/ acre	1.11	1.07	0.28	0.62
2000 % Owner-occ units	79.5%	82.6%	83.1%	71.8%
2000 % Renter-occ units	20.5%	17.4%	16.9%	28.2%
2000 % Vacant units	1.8%	2.0%	3.1%	2.2%
2000 % White	86.7%	86.1%	96.5%	95.0%
2000 % Non-white	13.3%	13.9%	3.5%	5.0%
2000 % High school or higher	92.3%	96.3%	92.6%	93.2%
2000 % Bachelors or higher	42.6%	69.1%	48.1%	42.1%
2000 % Housing units w/ mort	70.2%	67.0%	74.4%	84.1%
2000 % Housing units w/o mort	29.8%	33.0%	25.6%	15.9%

	Norwood	Randolph	Wilmington	Woburn
1980 Population	29,711	28,218	17,471	36,626
1990 Population	28,700	30,093	17,651	35,943
2000 Population	28,587	30,963	21,367	37,258
Δ in Pop 1980-00	-3.8%	9.7%	22.3%	1.7%
2000 Housing Units	11,911	11,497	7,141	15,312
2002 40B units	642	654	490	877
% Affordable units	5.4%	5.7%	6.9%	5.7%
2003 Med House Price	$348,500	$278,000	$344,000	$331,000
2000 Med Income	$58,421	$55,255	$70,652	$54,897
Δ in Med House Prices 1993-03	111.2%	122.4%	120.2%	129.9%
Δ in Med Inc 1990-00	36.5%	27.8%	35.4%	28.6%
2000 Med Gross Rent	$895	$863	$948	$881
2000 Housing units/ acre	1.78	1.78	0.65	1.89
2000 % Owner-occ units	57.2%	72.3%	90.3%	61.2%
2000 % Renter-occ units	42.8%	27.7%	9.7%	38.8%
2000 % Vacant units	2.7%	1.9%	1.8%	2.6%
2000 % White	91.5%	61.5%	95.8%	89.0%
2000 % Non-white	8.5%	38.5%	4.2%	11.0%
2000 % High school or higher	91.8%	87.3%	92.4%	88.1%
2000 % Bachelors or higher	39.2%	26.6%	31.4%	29.5%
2000 % Housing units w/ mort	63.9%	71.1%	76.5%	67.5%
2000 % Housing units w/o mort	36.1%	28.9%	23.5%	32.5%

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Photographs

Unless otherwise noted, all photographs are taken by the authors.

4463 - 70