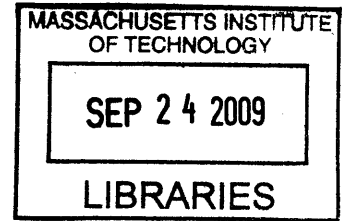


**Designing Density:  
Building Form and Site Design for Contextually Appropriate Multi-Family  
Housing in Boston's Inner-Ring Suburbs**

by

Jesse Kanson-Benanav

B.A. Politics and Religion  
Oberlin College, 2003



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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

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

September 2009

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ABSTRACT

This research focuses on multi-family residential development in the inner-ring suburbs around Boston in order to understand how dense housing can be designed in ways that are contextually appropriate for these existing urban settings. The particular design elements include: building form and massing, architectural details, open space and landscaping, and parking/transportation/access.

The main body of research is drawn from three cases of multi-family development that have been built in the Boston inner-ring, including: the Linden Street Development in Somerville, Commonwealth Residences in Newton, and Station Crossing in Melrose. The research presented includes extensive coverage of the public process that informed the development of each project, and how the building form and site design changed in response to the concerns of local residents and municipal regulators.

The final chapters include analysis of the common factors drawn from each case to inform the creation of ideal design elements as well a number of questions for further research.

Thesis Supervisor: Terry Szold

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For my "surrogate uncle" Jim Dinerstein, a tireless advocate for justice who dedicated his professional life to creating affordable housing for low-income people throughout the Midwest. He was always proud of his family's role in the founding of Park Forest, IL, sharing with me documents from the early years of that inner-ring suburb. May his life be a blessing and model for all of us who seek fair, affordable, and sustainable housing for all people.



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A brief word of thanks for those who made this thesis possible, in both direct and indirect ways.

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An incredibly special acknowledgement to my wonderful girlfriend Rachel Weidenfeld who stuck around even at times when it may have seemed she lost me to the depths of thesis writing. Thank you for dealing with me throughout this extended process, for making sure I slept and ate normally, and for your willingness to give me your advice even when you probably (and rightfully) thought I was making things much harder for myself. I promise to do the same as you finish school. Just one more year, then we get to have a normal graduate school-free life again!

I don't even know how to begin thanking my parents. Mom and Dad, you have been primary motivations in my life, and all I have accomplished is due to your love, guidance and unwavering support. Mom, you are my moral compass, the source of my passion and commitment to social justice and the primary reason that I cannot do anything that does not change the world. Dad, I credit you for my love of cities, and politics of course; you have taught me through words and actions that government can and *must* be a force for improving the human condition. Sorry for the scant phone calls of the last few months – since school is done, I assure you that in no time I'll be back to being the favorite son again!

Thank you to my friends and colleagues at DUSP. I am incredibly fortunate (and perhaps unworthy) to find myself amidst this accomplished, intelligent, and passionate group of urban thinkers. It is amazing to think how things might be if we ran the world, and I'm starting to think that may not be so far-fetched a possibility.

## **Chapter 1: Introduction**

The purpose of this thesis is to address a question that, as of yet, has received little direct attention in the existing cannon of literature on urban planning and development in the United States. That question is: how can dense, multi-family housing be built in existing areas and designed in ways that are appropriate for the surrounding urban fabric, particularly if that context consists of mainly detached residential building forms. The impetus for this research comes from the author's personal experience as a community organizer in Somerville, Massachusetts. For a number of years he worked on affordable housing policy with the goal of expanding affordable housing opportunities for low- and middle-income residents in this rapidly gentrifying city. While Somerville's reputation in the Boston region has evolved quite significantly over the last two decades, the city is popularly referred to as the densest city in the country, the densest city in New England, or perhaps most accurately, the densest city in the U.S. with a population under 100,000 people. Whatever the actual figure is, the fact is that at just over 4 square miles and a population of nearly 80,000 people, the city has a population density of roughly 19,000 people per square mile. At this number, Somerville rivals New York City with a population density of 26,000 people per square mile. By contrast, Boston has a population density of 12,000 people per square mile while the U.S. as a whole weighs in at just 79 people per square mile

Needless to say, Somervillians are quite aware of their unique situation. Seemingly without fail, at every community meeting around every development proposed during the time the author worked in Somerville someone could be sure to toss around density figures to explain their opposition to new housing in their neighborhoods. While this phenomena was witnessed around all forms of residential development, it was most acute when new affordable housing was proposed.

Although the sheer number of people living in such a small area is significant, Somerville is not

unique for using its “density” to explain opposition to new housing. Drawing again from personal experience, this author has been surprised by the tone of the housing debate during his six years as a resident in Somerville’s southern neighbor -- Cambridge. Despite the “People’s Republic’s” reputation for unrepentant liberalism, Cambridge is not without its density-based affordable housing opponents. While Cambridge’s existing housing stock and policies are the envy of affordable housing advocates around the region, in recent years it has not been unusual to see proposed developments stopped dead in their tracks due to the fervent opposition of existing neighbors. Notably this opposition is not coming from the wealthy residents of Tory Row and Brattle Street. Rather, the Cantabrigians most concerned with the impact of new housing are the middle-income residents around North and East Cambridge -- those who may actual benefit from the reduced cost of housing that comes with an increased supply.

The concerns raised in Somerville and Cambridge about the impact of increased density are echoed in every town in the region. In conducting this research, density has emerged as the major concern raised by residents in opposition to residential development in Newton, Melrose, Watertown, and Malden, among others. Few people would argue that residents should blindly support all development in their neighborhood. There is no doubt that one of the benefits of democracy is that citizens have the right to attend their local Planning Board to speak publicly against proposed development near their home. Nor is it irrational, given the long dominance of suburban expansion over the last 60 years for people to assume that decentralized development is the preferable for achieving health, happiness, and the American dream.

Common assumptions, however, are not necessarily permanent. As the cost of energy for home and transportation has risen in recent years, and workers sit snarled in traffic for their daily commutes, many Americans have begun to question the logic of suburban sprawl. Over the last decade, a cross-cutting movement has emerged among planners, environmentalists, and other groups concerned

with raw land consumed for suburban tract housing. Popularly characterized through terms like “Smart Growth” or “sustainable urbanism,” these forms of urban growth propose a variety of tools and regulations to limit the social, economic, and environmental degradation caused by traditional suburbanization. Now more accepted among a broad coalition of policy makers and activists, some states -- including Massachusetts -- have adopted guidelines or regulations to reward local communities for to implement these strategies.

This thesis is guided by the belief that decentralized suburban growth is to blame for the loss of farmland, the significant concentration of poverty within urban regions, and major factor in global climate change. As terms used to describe a movement, the specific tools of smart growth vary and are successful when applied in the correct local context. While those specifics are covered in more detail in the literature review chapter, this thesis takes a broad approach to defining the ideal forms of sustainable urbanism. In order to address the negative consequences of unfettered sprawl, future development in the United States must be directed away from the suburban or exurban fringe, and towards existing urban areas. These regions simply do not possess the seemingly endless land that facilitated the post-war suburban boom. The traditional form of large-lot, low-density, single-family tract development is the main culprit of resource consumption. Smarter and more sustainable development necessitates physical concentration of housing -- making people live closer to their jobs, closer to commerce, and closer to each other.

Population density is of course a key element of this sustainability. However, as illustrated by the Somerville example, popular perceptions about density and its impact is a major barrier to achieving this goal. Density has long been seen as the scourge of urban life from which the attainment of suburban homeownership was refuge. While the urban planning profession finds roots in the filth and disease bred in 19th century urban slums, such conditions are unheard of in the modern United States. Still, the perception of density as unequivocally negative presents a major hurdle to those in the

development field that seek more sustainable housing.

The arguments against density are not necessarily about filth or disease anymore. Instead, people focus on issues more direct to their own lives, such as the impact on traffic, parking availability, or the amount of open space in their neighborhoods. These are the elements of urban life that people experience on a daily basis -- everything you witness when you leave the house each day would be affected if someone built even a 10 unit apartment on that empty lot across the street. Derived from people's experience with the built environment, this research assumes that people's fears about density are expressed in relation to building form and site design element of specific development proposals.

Those of us who seek to expand the development of higher-density housing should find it helpful to understand how opponents use physical design elements to frame their position . This thesis explores question within the particular context of the Boston inner-ring suburbs, by reviewing the case of three multi-family housing developments in the inner-ring locations of Boston.

The work presented in the following chapters is a qualitative analysis of the three development case studies using a four-pronged framework for analysis that draws from existing literature on multi-family housing design. This study explores how building form and site design elements were discussed during the planning and development stages of each project.. The proposed framework is presented in the second section of Chapter 2, and is developed from important existing literature about the design of multi-family housing.

The information in the case study chapters are drawn primarily printed records and minutes from official public meetings held through the permitting stages. While this data provides rich information for each case, it is limited to documents retained by municipalities as required by Massachusetts public records law. This means that records of unofficial meetings are unavailable, as well as records from early development proposals that were denied permits or never officially applied

for. This data has been supplemented in particular instances by information in media reports..

The three cases were chosen based on their densities and urban context. Because this research is interested primarily in the inner-ring suburbs (roughly defined as communities within the Route 128 beltway). The proposed density for each project is greater than the density allowed on site by-right according to the local zoning bylaw. The projects were also chosen for comparison based on the number of a similar number of units, within a range of 42 - 57 units. It is important to note that, although all built within a reasonable pedestrian distance to a commercial districts, these developments are residential-only and bordered mostly by fewer-unit residential buildings.

The baseline criteria used to select cases for this thesis were used because they suggest a possible dilemma for high-density residential development. If urban core regions are targeted for smart growth development, but the availability of developable land is limited, we can expect new housing will be built based on the strategic availability of land. There will certainly be instances of large, mixed-use, transit-oriented development of at the scale of regional significance like Northpoint Towers in Cambridge or Jackson Square in Jamaica Plain. These developments are indeed controversial and may provide useful data about contextual design. However, they are frequently located in converted industrial districts, and not necessarily within existing neighborhoods.

## **Chapter 2: Literature Review**

While the question of design for the benefit of neighbors may have received little prior focus by researchers, this research builds upon existing work from a variety of inter-related subject areas in planning literature. These topics are necessarily reviewed before turning to the research at hand which draws from literature on: density, smart growth and suburban sprawl, development of the inner-ring suburbs, housing development, design, and contemporary residential development in the Boston region.

### *Measuring Residential Density*

The concept of density is fundamental to this entire paper. While many towns employ bylaws that include density regulations, one municipality may define density in terms of dwelling-units per acre while its neighbor may regulate unit square footage to achieve the same goal. Neighbors around proposed residential developments may believe the addition of even one more unit is too dense for their area, without distinguishing between the number of dwelling units, potential residents, or the impact of removing public infrastructure like roads from the density calculations.

There is a basic inconsistency in the definition of density as it relates to urban planning and development. This disagreement is addressed by Azra Churchman in his 1999 paper "Disentangling the Concept of Density," a comprehensive review of the academic and practice literature on density in urban planning. As a seemingly "objective, quantitative, and neutral term," at first glance density seems to be a useful concept for planning<sup>1</sup>.

As Churchman's review explains, however, density is by no means an objective, consistent term.

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<sup>1</sup> Churchman, Azra. "Disentangling the Concept of Density." Journal of Planning Literature 13 (1999): 389.

The way density is used depends greatly on the situation. This distinction is best explained by separating the concepts use into three concepts: density, perceived density, and crowding. From this standpoint, density refers to the most objective, calculated measure, usually determined through calculations of dwelling units or population (numerator) by land area (denominator). With perceived density and crowding, the evaluation becomes more subjective. Perceived density looks beyond the calculation and focuses on the way that individuals estimate the density of a given area. Crowding is closely related to perception, but refers to the subjective point at which high density has psychological impacts upon people's well-being.

Churchman highlights how subjective and context-dependent the density concept is. For the purposes of this thesis, the local or state regulations that define the density of the included case studies may be based on some consistent calculation. However, a density that policymakers perceive as advancing regional goals, residents may perceive as reaching the point of crowding. In other words -- density may be calculated through objective measures, but its impact is dependent on social context. This dilemma is referenced in Alexander Cuthbert's re-examination of high-density development in Hong Kong.<sup>2</sup>

Cuthbert bases his analysis on the political economy within which residential high rises are built. While the form of dense, tall residential towers in China may reflect the American counterparts, the conditions that led to their construction are very-much rooted in the centralized, communist regulations that govern Hong Kong. The densification of U.S. high-rises, on the other hand, is uniquely American -- it is rooted in capitalist desires to minimize cost and concentrate wealth. While the analysis undertaken in this thesis does not focus on the political economy context of each case study, Cuthbert is a useful reference for understanding how the real-world implications of density are highly context-dependent. While one may use the lens of socio-economic forces to illustrate this dilemma, this thesis

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<sup>2</sup> Cuthbert, A.R. (1985) "Architecture, Society and Place – The High-Density Question Re-examined." Progress in Planning 24, 2.



focuses on the dilemma that emerges from the context of stakeholder perceptions of objective density measures.

In order to adequately address the conflict that emerges from conflicting perceptions of density measures, it is important to understand how objective calculations are determined. This task was undertaken by Tami Chia-Liang Chuang in her 2001 thesis for the Master in City Planning degree at MIT. In her review, Chuang reviews the common methods and emerging alternatives that the planning field have used to regulate residential density<sup>3</sup>. Chuang demonstrates that subtle differences in calculation can lead to densities that are difficult or impossible to compare. Differences may result from inconsistencies in defining the land area included in the calculation, such as the inclusion of public right-of-ways or parcels non zoned for residential use. This analysis is particularly useful for the research at hand. While effort has been made to ensure that the case studies used for this thesis have a similar number of units, their densities are still difficult to compare due to variations in lot size or relative to their surrounding context.

The purpose of this research paper is not only to review the concept of densities and conflicts in the way it has been used in the planning field. While this history is an important element that forms the contextual basis of the following analysis, of greater concern is the real-world application. Specifically, this research is premised on the notion that -- despite a historically sordid relationship between density and American residential development, future development should aim to densify the urban core as a way to address various social, environmental, and economic concerns that currently face our nation.<sup>4</sup>

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<sup>3</sup> Chuang, Tami Chia-Ling (2001). "Understanding residential density: the relationship between policy, measurement, and perception." MIT Thesis.

<sup>4</sup> Shore, William (1995). "Recentralization: The Single Answer to More Than a Dozen United States Problems." Journal of the American Planning Association, 61:4,496 — 503.

## *The Smart Growth Movement*

The notion that increased density can improve human conditions is explained well by William Shore. In his 1995 essay, "Recentralization: The single Answer to More than a Dozen United States Problems..." Shore explains how the decentralization of the American economy has impacted the racial and ethnic separation in this country. As businesses have moved jobs away from major city downtowns and into the suburbs, inner-city residents -- overwhelmingly low-income racial/ethnic minorities -- become isolated from the best jobs and education. The solution, therefore, is to recentralize: not only move businesses back to downtowns and surrounding areas, but to bring suburban residents back as well. In addition to the increasing equity in job access and education, Shore cites thirteen additional impacts of recentralization, including:

- Relief of traffic congestion from suburban areas into the urban core because higher population density can support public transportation;
- Lower energy consumption per capita;
- Conservation of open space due to decreased consumption of undeveloped exurban land;
- Better public health because the more closely knit built environment of cities improved conditions for pedestrian and bicycle commuting/recreation.

The concept of "recentralization" is important for this thesis as it is an active and normative expression of the basic concept of density. Shore's analysis draws from a variety of sources to make the case that social and environmental conditions would be improved by changing human development patterns. Recentralization is an umbrella term that not only advocates for greater residential density, but also requires fundamental shifts in the dominant approach to a host of other land use issues, including the separation of uses and proximity between housing and commercial centers. While this thesis draws from Shore the normative assumption about the benefits of densification, Shore also

explains how any conclusions or recommendations provided here must be understood in context of a broader effort to recentralize urban development in the United States.

Recentralization could be a problematic term, however, as consumer preference for large-lot suburban housing grew by epic proportions in the second half of the 20<sup>th</sup> century. Around the same time as Shore, Tony Downs first published his "New Visions for Metropolitan America." With similar focus as Shore, Downs shies away from such normative assertions as "recentralization" to write of the alternative visions of growth that are needed to address problematic development patterns and the relationship between suburban expansion and urban decay<sup>5</sup>. While placing the discussion in a slightly more regional context than Shore, Downs focuses particularly in the immutable connections between central cities and their suburbs. Downs does not just advocate for inner-city redevelopment as a way to spur economic growth and racial-economic mixing there, but he also envisions less land consumptive and more socially equitable growth patterns in the suburbs as well. This focus is particularly important for thesis at hand as it will address the role that suburbs can play in addressing the housing needs for urban Boston.

In addition to professionals in planning research and policy, support for alternative development patterns grew within the design-side of the field as well. In 1997, Douglas Kelbaugh published his book "Common Place" to explain how he and other architects/urban designers have addressed the problem of the growing metropolis. Like Shore and Downs, faults modern sprawl for costly segregation of economic classes and races, as well as loss of exurban greenfields and agricultural land. However, as an architect Kelbaugh also takes fault with the design of sprawl, particularly "banalization, scalelessness, commodification and typological impoverishment" of car-dependent, contemporary suburban land use patterns<sup>6</sup>. He explains the public charrette process used

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<sup>5</sup> Downs, Anthony. New Visions for Metropolitan America. Washington DC: The Brookings Institution, 1994.

<sup>6</sup> Kelbaugh, Douglas. Common Place: Toward Neighborhood and Regional Design. Seattle: University of Washington Press, 1997.

to design new “urban villages” in the Seattle master plan, lauding them for their walkability, transit-friendliness, coherent neighborhood design, and mixing of uses.

Shore, Downs, and Kelbaugh were certainly not the only authors who have criticized sprawl. However, their inclusion in this literature review helps to build the stage for an important concept in the contemporary city planning field, which is a major foundation of this paper. As Terry Szold writes, the concept of Smart Growth development emerged in the late 1990’s and is rooted in statewide urban growth legislation of the 1970s and 1980s<sup>7</sup>. Essentially a euphemism, as Brian Blaesser points out in Szold, the “smart growth movement” targets an end to the “essentially unlimited, non-contiguous, low-density residential and commercial development” that characterizes sprawl.

Written in 2002, Szold’s volume helped focus academic research on smart growth concept with the inclusion of essays from top intellectuals and practitioners in the field. As if predicting the later Obama presidency, Szold writes of the *term* Smart Growth as one that “emerged in the mid-1990s, and will likely be used with greater frequency over the next few years.”

Indeed, as the cost of energy for transportation and home heating have risen steadily, Smart Growth has gained momentum in the United States. The Federal Environmental Protection Agency program provides financial support for communities to adopt Smart Growth policies. Through the Commonwealth Capital program, Massachusetts requires cities and towns to develop and prioritize Smart Growth in local regulation in order to qualify for a variety of state housing, transportation, and economic development funding. Smart Growth America (SGA), a national advocacy organization, encompasses over 60 member groups in 39 different states. National advocate groups that affiliate with SGA cover a range of sustainability issues, including: American Farmland Trust (agricultural preservation), National Resources Defense Council (environmental protection), Local Initiatives Support Corporation (community development), National Low-Income Housing Coalition (affordable

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<sup>7</sup> Szold, Terry and Armando Carbonell, eds. Smart Growth: Form and Consequences. Cambridge: Lincoln Institute of Land Policy, 2002.

housing), and the Congress for New Urbanism (urban design and development)<sup>8</sup>.

The overarching goal of the Smart Growth movement is to end the rapid suburbanization that had dominated U.S. land development since the second world war. However, as suggested by the broad coalition of advocacy groups, Smart Growth is not easily characterized under one discipline or profession. Smart Growth advocates believe quality-of-life issues must be paramount in land use and real estate development decisions. Reflecting on the second-half of the 20th century, Smart Growth is focused on repairing the social isolation, economic disparities, racial divisions, and environmental destruction caused by unimpeded suburban and exurban development. The “smart” in Smart Growth is intended to express the notion that the serious consequences of suburban development need not be fixed by preventing new growth entirely, but through comprehensive strategies that account for the economic, environmental and social impacts of development. On the same note, while advocating for a more intentional and comprehensive approach to development, Smart Growth does not believe in “one-size-fits-all” solutions<sup>9</sup>.

While the specific interventions may vary depending on local context and needs, there are 10 general principles that guide all smart growth initiatives. “In order to address the negative consequences of sprawl and to encourage better development schemes, communities should:

- 1) mix land uses;
- 2) create a range of housing opportunities and choices;
- 3) take advantage of compact building design;
- 4) create walkable communities;
- 5) foster distinctive, attractive communities with a sense of place;
- 6) preserve open space, farmland, natural beauty and critical environmental areas;
- 7) strengthen and direct development towards existing communities;
- 8) provide a variety of transportation choices;
- 9) make development decisions predictable, fair and cost effective;
- 10) encourage community and stakeholder collaboration<sup>10</sup>.

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<sup>8</sup> Smart Growth America. “Member Organizations” at <http://www.smartgrowthamerica.org/members.html>

<sup>9</sup> Anderson, Geoff and International City/County Management Association. “Why Smart Growth: A Primer.” Washington DC: ICMA Smart Growth Network.

<sup>10</sup> List from Benfield, F. Kaid, Jutka Terris, and Nancy Vorsanger. Solving Sprawl: Models of Smart Growth in Communities Across America. Washington DC: National Resource Defense Council, 2001.

The list of smart growth principles addresses a number of broad strategies that intend to reform primary methods of land development in the United States. These strategies have implications for a variety of fundamental aspects of urbanization in this country, including the form and geographic distribution of residential development. By encouraging compact and mixed use development in existing areas, these strategies direct housing production away from the dispersed, low-density form of traditional sub-divisions and into higher-density forms that consume less land but increase urban residential density. While this thesis does not purport to address the Smart Growth movement specifically, it is based in part on the fundamental smart growth assumption that a fundamental shift is needed in U.S. development patterns, particularly through the focus on redevelopment of existing urban areas rather than expansion to urban fringe.

Among smart growth advocates, those organizations and individuals allied with the real estate development industry have focused significant energy on the residential development issues on point in this thesis. Within the real estate industry, a number of trade and interest groups have established themselves as advocates for these new forms of sustainable development. Among the most vocal industry proponents of smart growth and dense forms of housing is the Urban Land Institute (ULI), a trade organization representing real estate development professionals. ULI's research and publication division has produced a number of books on the benefits of increased residential density in urban areas. Directing their efforts to an audience of practitioners rather than academics, ULI has advocated for a shift in preferred form of housing development from single-family homes to more dense and compact multi-family housing. In addition to a number of publications that are focused on explaining why this new form is important, the ULI has published manuals to explain *how* developers can go about building support in communities for dense forms of housing. Since the early 2000's ULI has collaborated with the non-profit affordable housing advocacy group the National Multi-housing

Coalition to explain how the social inequities of sprawl – economic and racial segregation between inner-cities and suburbs – can be addressed by producing dense, multi-family housing whereby market-rate housing can off-set the cost of market-rate units.

The research that follows is based upon fundamental agreement with the arguments and assumptions found in the smart growth movement, particularly the belief that the development of dense, multi-family housing can address a myriad of sprawl's negative impacts. Just as the Smart Growth movement advocates for context-sensitive planning, the intellectual validity of this paper requires it be placed in a particular geographic context. This thesis should be understood as contributing to the growing body of research on sustainable development and Smart Growth. In particular, it focuses on the impact of new residential development in the context of the Boston region and the particular dilemma of expanding housing opportunities in a region with a severely restricted supply of usable, undeveloped land in existing communities.

This thesis assumes, as many research have demonstrated previously, that smart growth development is an effective technique to address the negative consequences of suburban sprawl. Since the effectiveness of smart growth development depends on the application of broad strategies to individual communities or projects, this thesis will explore the particular situation within the Boston metropolitan area.

## *Residential Development in Boston Region*

Anthony Flint has written about development conditions in the inner-ring suburbs of Boston, particularly in relation to both sprawl and the more recent rebirth of Boston-proper. In 2001 Boston Globe article he reported on a study from the Massachusetts Citizen Housing and Planning Agency (CHAPA) that details the economic conditions of Boston's inner-ring suburbs, those falling within the core formed by state highway 128. Quoting the report's author, Myron Orfield, Flint writes:

The inner-ring suburbs generally cannot benefit from the revival of interest in city living that has led to the prosperity of Boston, Orfield noted.

"The older, post-World War II suburbs don't have the housing stock, the centrality, or the restaurants that the urban neighborhoods have to be attractive to yuppies. They don't have the assets to retool that central cities do," he said.<sup>11</sup>

These conditions have been studied in recent years by a number of institutions concerned with housing and development in the Boston region. In 2006, the Rappaport Institute at Harvard and the Pioneer Institute for Public Policy released a report that detailed the regulatory web in greater-Boston suburbs, the Rappaport/Pioneer report was based on a 2004 survey of land use regulations in 187 municipalities within 50 miles of Boston<sup>12</sup>. The survey queried regulations on zoning, subdivisions, wetlands, and septic regulations in each municipality, finding that towns and the state impose significant prohibitions on development that greatly limit the feasibility of developing denser, multi-family housing. This has resulted in recent decades in a great restriction in the production of new housing. The report highlights the inflation in Boston area housing prices, which have grown between 179 to 210 percent since 1980 and faster than any other metropolitan area except the New York City region.

In 2007 the Pioneer Institute relapsed a second report, building upon the findings of the 2006

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<sup>11</sup> Flint, Anthony. "First-Ring Suburbs Hurting, Study Finds." *Boston Globe* 21 October, 2001: B1.

<sup>12</sup> Glaser, Edward, Jenny Schuetz, and Bryce Ward (2006). "Regulation and the Rise of Housing Prices in Greater Boston." Cambridge: Rappaport Institute for Greater Boston.



study. Summarizing the 2006 report, Amy Dain writes:

Massachusetts' inadequate framework for land use regulation has caused hyperinflation in housing prices, loss of population, poorly designed neighborhoods, and sprawling development that threatens the state's environmental, agricultural, and recreational resources<sup>13</sup>.

The report suggests that these conditions can partially be addressed through state action, with policy changes that permit more compact/higher density development and reward municipalities for meeting statewide goals about regarding the quality and quantity of housing. In addition to state actions, the report suggest that municipalities should reform local zoning to allow by right accessory dwellings, by mixed use development within close proximity to transit, as well as by-right conservation sub-divisions that cluster residential development to preserve open space.

Massachusetts' "anti-snob zoning" legislation, chapter 40B, is a program that predates the 2006 report, and aims to ease regulation and encourage more affordable housing development in the state. The Pioneer report of 2007 details a number of newer state programs that encourage sustainable development, including chapter 40R (smart growth zoning), the Commonwealth Capital program (establishing smart growth requirements for various state grants to municipalities), and Executive Order 418 (establishing guidelines for local housing production plans).

In a report published in 2005, the Chicago-based Business and Professional People for the Public Interest (BPI) presents case studies of low- and moderate-income housing development in affluent suburbs of Boston<sup>14</sup>. Using examples from Andover, Concord, Lexington and Bedford, BPI describes how local regulations have helped spur more equitable housing production, including: local inclusionary zoning bylaws, density bonuses for affordable housing, and community land trusts. All topics full enough for their own thesis, this report suggests that some communities in the Boston

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<sup>13</sup> Dain, Amy (2007). "Housing and Land Use Policy in Massachusetts." Published by the Pioneer Institute for Public Policy Research, Boston.

<sup>14</sup> Levine, Susannah (2005). "Creating Balanced Communities: Lessons in Affordability from Five Affluent Boston Suburbs." Published by Business and Professional People for the Public Interest, Chicago.

region have made significant progress in increasing affordable housing development.

As Jim O'Connell points out in a 2003 working paper published by the Lincoln Institute for Land Policy, the Boston metropolitan area ranks as the 77<sup>th</sup> "least sprawling" metropolitan region out of the largest 83 nationwide<sup>15</sup>. Certainly this is a fact for Boston-area smart growth advocates to celebrate, but it also presents a challenge fairly unique for this region – since many communities around Boston predate modern sprawl, they historically developed at higher densities. Much of the sprawl in eastern Massachusetts has occurred as traditionally rural communities have tried to maintain low densities and avoid compact, mixed-use development. However, the additional challenge here is to find sufficient land available for infill development in Boston's dense, inner-core.

With the severe restriction on available land in Boston and the inner-ring, organizations like Rappaport or the ULI have advocated for major mixed-use and transit-oriented developments as urban land becomes available. A number of major projects to date around the Boston-region have been heralded by supporters of sustainable development. In his working paper, O'Connell highlights a number of large, mixed-use projects that have been developed around transit stations and within existing communities. Most of these projects occur within commercial districts, or on large parcels previously devoted to industrial/manufacturing uses.

These larger infill projects are critical for creating new housing that preserves open space and connects people with alternative transportation to the regional economic hubs. This thesis presumes that, given the shortage of these large infill opportunities in the highly developed Boston real estate market, it is also critical to ensure that smaller but still denser multi-family residential projects are feasible in the existing communities.

The working assumptions and approach of this thesis is only one vein in the work to be done in promoting more sustainable forms of development in eastern Massachusetts. For one, no matter how

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<sup>15</sup> O'Connell, Jim (2003). "Ahead or Behind the Curve? Compact Mixed-Use Development in Suburban Boston." Cambridge: Lincoln Institute of Land Policy working paper.

fair conditions are for multi-family development, their effectiveness in promoting racial and economic diversity are greatly impacted by economic conditions like jobs and housing. This thesis assumes that developing multi-family housing in the inner-ring suburbs of Boston is an important method to create housing opportunities and choices while strengthening and directing growth towards existing communities in the region. This research focuses on the inner-ring because of these towns' proximity to the major regional employment and commercial centers in Boston and Cambridge, with relatively easy access to public transportation.

### *Multi-Family Housing Design: Analytical Framework*

The research presented in subsequent chapters is a qualitative study of three different multi-family housing developments within Boston inner-ring suburbs. The data presented has been drawn from a variety of sources, including primary documents (building permit filings, minutes from Planning Board meetings), second-hand published accounts such as newspapers, and interviews with municipal officials and members of development teams involved the specific project. Since this thesis is not designed as a quantitative analysis, there is no presumption that that specific datum presented can necessarily be extrapolated to any broad conclusions about development in the region generally. However, the goal is to identify general themes that emerge across each case that can be use to inform recommendations about multi-family housing development throughout the inner-ring suburbs.

Before turning to the specific cases, however, it is necessary to establish a consistent methodological framework so that ensure a sufficient level of comparability between the cases. The purpose of this research is to understand how elements of building form and site design can improve the feasibility of developing multi-family housing. This chapter proposes an analytic framework built upon four design elements:

- Building form and massing - size, shape, and placement of the primary structures on a site.
- Architectural details – Building design elements, including building materials, colors, fenestration.
- Open space and landscaping – The areas of a site not used for buildings, parking or storage. Includes both the amount of open space as well as the way it is designed/for what use.
- Parking, transportation, or access – A catch-all term capturing the ways people gain access to a property, and move in and around the site. May involve vehicle, pedestrian, or alternative transportation access.

In order to ground this analytical framework we turn briefly to a review of literature on the physical design and planning of multi-family housing. While the literature review in the previous chapter provides the intellectual grounding for this thesis, the following works will help establish a specific structure for analysis.

### *Designing Multi-Family Housing for Resident Benefit*

In Housing as if People Mattered, authors Clare Cooper Marcus and Wendy Sarkissian present a manual to redirect the priorities of the multi-family residential developers and designers.<sup>16</sup> Using post-occupancy surveys of residents in the United States and England, Marcus and Sarkissian propose how new developments could be designed to better serve the long-term needs of future residents, rather than just the immediate needs of the developer or client. Their study is mainly focused on family-sized homes, particularly private affordable housing.

*Building form and massing* - According to Marcus and Sarkissian's survey, the basic "density and form" of a project are vital to improving the resident experience. The development must be adequately sized to provide adequate space for leisure use by the residents, but small enough to avoid the

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<sup>16</sup> Cooper, Clare Marus and Wendy Sarkissian (1986). Housing as if People Mattered: Site Guidelines for Medium-Density Family Housing. Berkeley: University of California Press.

appearance of public housing “projects.”

*Architectural details* – Having much overlap with form and massing, this study suggests that the total “visual milieu” of a housing development contributes significantly to resident satisfaction. Even if the overall massing of a project, residents prefer buildings that conform to prevailing norms locally of the middle-class home, and doesn’t stand out in a neighborhood. A variety of design details are important, including building materials, color, and façade elements.

*Open Space and landscaping* – Landscaping should be treated as a critical design element according to this study, and should be made to provide active service to residents rather than sit empty or inaccessible. Because Marcus and Sarkissian are concerned with family housing, they propose the inclusion of programmed children’s play areas where appropriate. In addition, residents are satisfied by plantings that provide shade and distributed through the property rather than relegated to property edges or serving only to block neighbor views.

*Parking, transportation, and access* – Vehicle storage should be adequate to meet the actual demands created by residents, which are not always in-line with local requirements. Parking areas should be easily accessible and viewable from residential units. Like open space, pedestrian paths in and around property should be designed to encourage use, not sit empty creating perceived security issues.

### *Designing Multi-Family Housing to Shape Consumer Preference*

Another design manual for multi-family housing, Higher Density Housing, written by Sanford Goodkin and published by the National Association of Home Builders, takes a similar approach to Marcus and Sarkissian<sup>17</sup>. However, instead of approaching from the perspective of the long-term needs of future residents, Goodkin’s manual is targeted towards increasing consumer preference for higher density

<sup>17</sup> Goodkin, Sanford R (1986). Higher Density Housing: Planning, Design, Marketing. Washington DC: National Association of Home Builders.

housing. Goodkin proposes three “layers” of design that impact how a perspective buyer will perceive the product: community/project entrance, street/cluster entrance, individual unit entrance. At each level, psychological cues impact how the consumer reacts to the development, and must communicate the message of “*arrival and home.*”

*Building form and massing:* Goodkin writes that “as densities increase, the interaction among buildings on the site becomes especially important” (71). He contends that building arrangements should take advantage of natural site features and offer a variety of views from the street, in order to ensure visual differentiation when potential buyers view the site. Variations in roof planes, setbacks, and other forms are important to achieve unity and entry individuality.

*Architectural Details:* According to Goodkin, these design elements are a major selling point of any higher density community. In order to increase consumer preference for these building types, particularly in areas where lower density forms are prevalent, the external finish materials should relate to local market tastes. While variations in form are desirable, building materials should be kept simple as too much differentiation in finish can produce visual confusion and reduce the project’s overall attractiveness.

*Open space and landscaping:* Since the amount of open space and landscaping is likely to decrease as a unit density increases, it is especially important for these projects to emphasize the landscape treatment. Plants can be used to create and screen individual unit entrances.

*Parking, transportation, and access:* Goodkin addresses this topic on two levels – parking and street design. Parking can have a major impact on consumers’ preference for a housing product, but the amount provided can be configured to the needs of the target market. This may require significant consultation with local permitting authorities. On the level of street design, although many dimensions are determined by local codes, developments of adequate size can implement a hierarchy of streets (arterial-collector-local) to encourage or discourage public access through the property.

## *Designing Multi-Family Housing for Infill Development*

As Marcus et al., and Goodkin were both published in 1986, they predate the emergence of the contemporary smart growth movement. The Urban Land Institute published Diane Suchman's volume, *Developing Successful Infill Housing*, in 2002<sup>18</sup>. As mentioned in the previous chapter, ULI has been a leading advocate of sustainable development and smart growth, particularly as relates to the development of multi-family housing. Like Goodkin, Suchman's book is a manual targeted at real estate developers. However, consistent with ULI's smart growth leanings, Suchman focuses particularly on infill housing development on lots in existing urban areas.

*Building form and massing:* No rules when it comes to size. Density determined by a variety of factors including price of land and local market preference/willingness to pay. Important that form be compatible with surrounding products – in some urban areas codes may allow *greater* density than would be considered appropriate design. Mixed product developments have benefit as consistent with varied patterns that make cities "interesting."

*Architectural details:* Again, it is important to be consistent with local patterns. Study the surrounding neighbor context and provide details that fit; porches for example in some areas.

*Parking, transportation, and access:* Should enhance overall development – benefit of urban infill is proximity to amenities. Pedestrian pathways should facilitate resident and neighbor access to nearby services. Consumer research shows many suburban residents identify culturally with cities, but do not want "city hassles," particularly the struggle for parking. Depending on local ordinances, creative solutions should be considered and amount of parking may be configured based on market.

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<sup>18</sup> Suchman, Diane (2002). *Developing Successful Infill Housing*. Washington, DC: ULI—the Urban Land Institute.

## *Designing Multi-Family Housing for Affordability*

Avi Friedman a professor at McGill University and a writer on New Urbanism, published a textbook in 2005 for planners and architects involved in the affordable housing industry. In his book, Homes Within Reach: A Guide to the Planning, Design and Construction of Affordable Homes and Communities, Friedman presents a comprehensive manual for affordable housing development intended to overcome the significant challenges to affordable housing that are produced by consumer preference and local codes in the United States and Canada<sup>19</sup>. As a new urbanist, Friedman promotes methods for developing affordable housing in both newer suburbs as well as infill housing in existing urban areas. Since the latter is the concern of this thesis, Friedman's statements on these matters are reviewed here.

*Building form and massing:* While various physical and social calculations go in to determining the appropriate density of a project, Friedman suggests that a major component of a successful project depends its density in comparison to "respectable and nearby housing." If a project is much larger in form, such as a high-rise building in a three-decker neighborhood, the development will stand out as unusual and be easily stigmatized by neighbors.

*Architectural details:* As suggested by the author reviewed previously, the basic external design details of a new housing development will also have a significant impact on how the project and its residents are perceived by neighbors. Friedman specifically reviews how the choices in façade materials and colors should match the style and preferences on the surrounding neighborhood.

*Open space and landscaping:* Friedman notes that supplying adequate open space is difficult in high-density projects, particularly for infill development on smaller, urban lots. He says that open spaces should be centrally located to allow quick and direct access from all dwellings. As infill

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<sup>19</sup> Friedman, Avi (2005). Homes Within Reach: A Guide to the Planning, Design, and Construction of Affordable Homes and Communities. Hoboken, NJ: John Wiley and Sons, Inc.



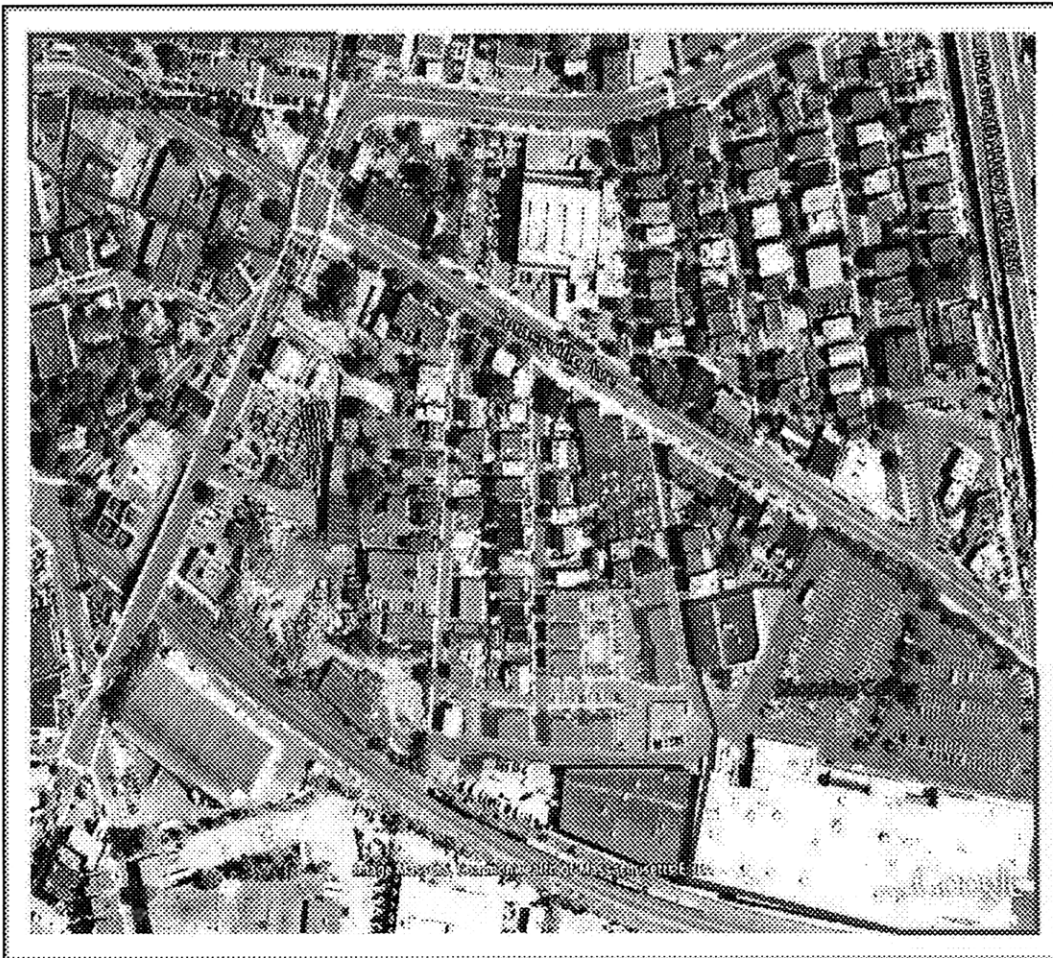
developments occur frequently in existing neighborhoods, there is a tendency to create street-facing units that continue the visual consistency of the street façade. While this has benefits for tying the development into its block or neighborhood, it can create open spaces that lack safety, privacy and ownership for them to be successful. A more desirable alternative is to create smaller, more private series of open spaces for each unit.

*Parking, transportation, and access:* Friedman is concerned with traditional choices that developers have made in the location of on-site parking. He says that, in order to reduce the native visual impact from parking demands of new multi-family housing, parking spaces should not dominate the streetscape. If private driveways are allocated to individual units, their width should be kept at a minimum so as to increase the soil availability for attractive street-facing landscaping. Where possible, developments should be designed with underground parking, or at least with private lanes that lead to ground level parking lots in the rear of the site. In addition to on-site parking, Friedman devotes much of his book to the purposes and impacts of various roadway configurations. He writes that, when new streets need to be constructed for infill developments, the existing street network should be extended to create a smooth transition between existing and infill housing, for both vehicles and pedestrians.

## **Chapter 3: Case Study - Somerville Linden Street**

In the early 1990s the Somerville Community Corporation (SCC) purchased a partially abandoned industrial lot in the Union Square neighborhood of Somerville. SCC is a non-profit community development corporation founded in the late 1960s as part of President Johnson's War on Poverty. Although committed to affordable housing development, until this time the organization had focused mainly on homeless prevention services and had produced very few actual housing units. At the time of purchase, the organization planned to use the site to help incubate local businesses, and for most of the decade it remained the location of a small but active bicycle manufacturing company.

When the bicycle company closed in the late 1990s, SCC considered their options for the site.



*Illustration 3.1: Site context in the Union Square neighborhood of Somerville.*

Instead of continuing their economic development initiative, the organization decided to begin their largest development project to date. In the spring of 1999, SCC contracted with the architecture firm of Mostue and Associates to consider the feasibility of a 100% affordable housing development, financed through state and federal tax credit programs.



*Illustration 3.2: Site in context -- A view down Linden Street towards Somerville Avenue.*

The site is located in the Union Square neighborhood, an area that was once the main central business district of Somerville that had declined in prominence in recent decades due to the growing popularity of the city's Davis Square neighborhood. The neighborhood can be described in three sections. The main commercial district is at the heart of the neighborhood, along the convergence of Washington Street and Somerville Ave – providing a direct route from Harvard University two miles west to I-93 and downtown Boston three miles west. Most of the residential blocks are located directly north on Prospect Hill and west along Washington Street. Contiguous to the central commercial corridor to the south is an active industrial zone.

This site in question is not located in the primary residential zones, but is instead tucked among the southern industrial zone in a small area called the Linden/Allen/Merriam – referring to the names of the three streets that are located there. This small neighborhood is extremely tight, with roads that are more narrow than the standard Somerville street (approximately 30-feet wide versus the approximate 40-foot width of streets in the other Union Square residential zones).

	Square Feet	Acres	Dwelling Units	Residential Density
Linden/Allen/Merriam	~129,000 square feet	~2.9 Acres	67 units	23 du/acre
Census Block Group (including portions of residential zone north of Somerville Ave)	4,019,846 square feet	92 Acres	616 units	6.7 du/acre
Census Tract (including portions of residential zone north of Somerville Avenue)	14,591,750 square feet	335 Acres	972 units	2.9 du/acre
Somerville citywide	114,476,663 square feet	2,628 Acres	32,477 units	2.8 du/acre

*Table 3.1: Density Comparisons throughout Somerville. The Linden neighborhood is already extremely dense compared to its urban context.*

According to the Somerville tax assessor maps, the SCC site consists of two lots originally divided into eight different parcels. Site A is the location of the previous bicycle factory, and is identified in assessor records as consisting of seven parcels between Linden and Merriam Streets. The parcels combine for a total area of 57,520 square feet, or 1.32 acres.

Site B is much smaller, and at the time of development was rented to the Massachusetts Water Resource Authority for vehicle storage. It sits directly across Linden Street from the southwest portion of Site. The total area of Site B is 9,231 square feet, or .21 acres. The combined property is 66,751 square feet, or approximately 1.5 acres.

The whole of the combined property is located in the Residence B (RB) zoning district. According to the Somerville Zoning Ordinance, the main purpose of the RB district is: “to establish and preserve medium density neighborhoods of one-, two- and three-family homes.” By this designation, a residential lot in the RB district must be at least 7500 square feet and include no more than three dwelling units. Because the SCC property totals 66,751 square feet, it can be split into no more than the original eight parcels. Therefore no more than 24 units could be built on this site, a density of 16 units/acre – less than the existing 23 units/acre in the rest of Linden/Allen/Memorial.

Clearly SCC had their work cut out for them – as a non-profit affordable housing developer,

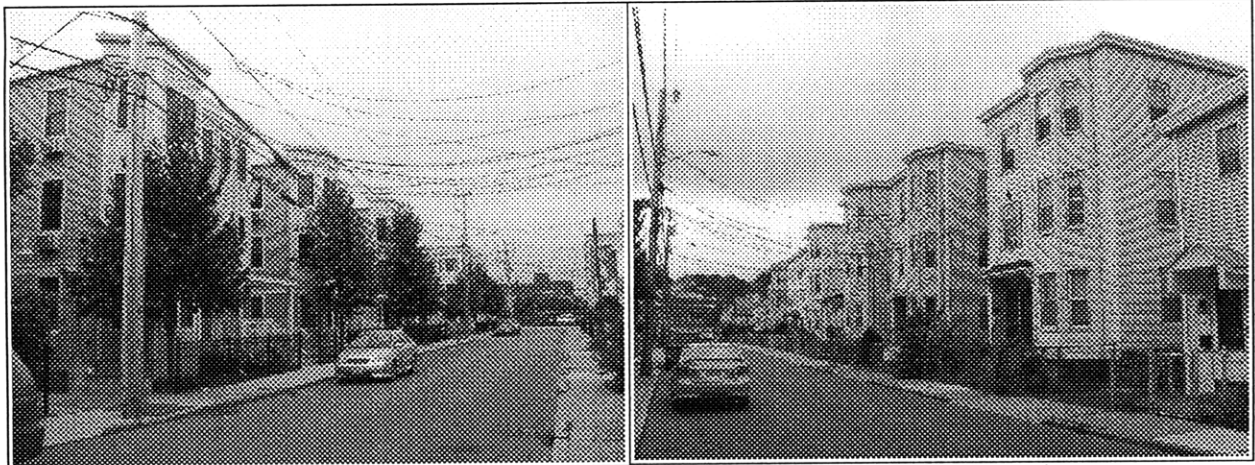
SCC was concerned with maximizing the number of affordable units. According to current SCC Executive Director Danny Leblanc, at that time a member of the Board of Directors, the organization could not afford to construct a by-right project given the cost of operating a 100% affordable rental development. The developer assumed that, given the present conditions of neighborhood density, any project beyond that allowed by-right would be a tough sell to both residents and city permit granting authorities.

### *NEIGHBORHOOD PROCESS*

Unlike the other case studies in this thesis which have substantial records available to account for resident reaction, no record of public testimony during city permit review could be located in Somerville planning department records. According to Leblanc, the lack of record may be due to the fact that few residents actually testified during planning or zoning board hearings. This was not due to lack of interest.

For nearly a year prior to SCC's first permit application to the city, then-Executive Director Paula Herrington engaged in negotiations with residents and the ward Alderman. Herrington says that while SCC did host a number of public meetings for residents at a nearby community center, a substantial amount of her time was spent talking to neighbors one-on-one in their homes. By the time SCC applied for permits and the public hearings were held, Herrington had sufficiently assuaged residents' concerns about a potential higher-density development on the site. While an official record does not exist, Herrington and other development staff and consultants recounted the primary reactions they heard from residents:

*Architectural details* – Leblanc says that residents had misconceptions about “affordable housing,” confusing private subsidized housing with public housing or “projects.” Residents may have had some prejudices about who lives in public housing, but also expressed concern about avoiding



*Illustration 3.2: Reflecting the architectural similarities between SCC development and existing residences.*

the banal brick complexes that would certainly look out of place compared to traditional triple-decker that dominates the area.

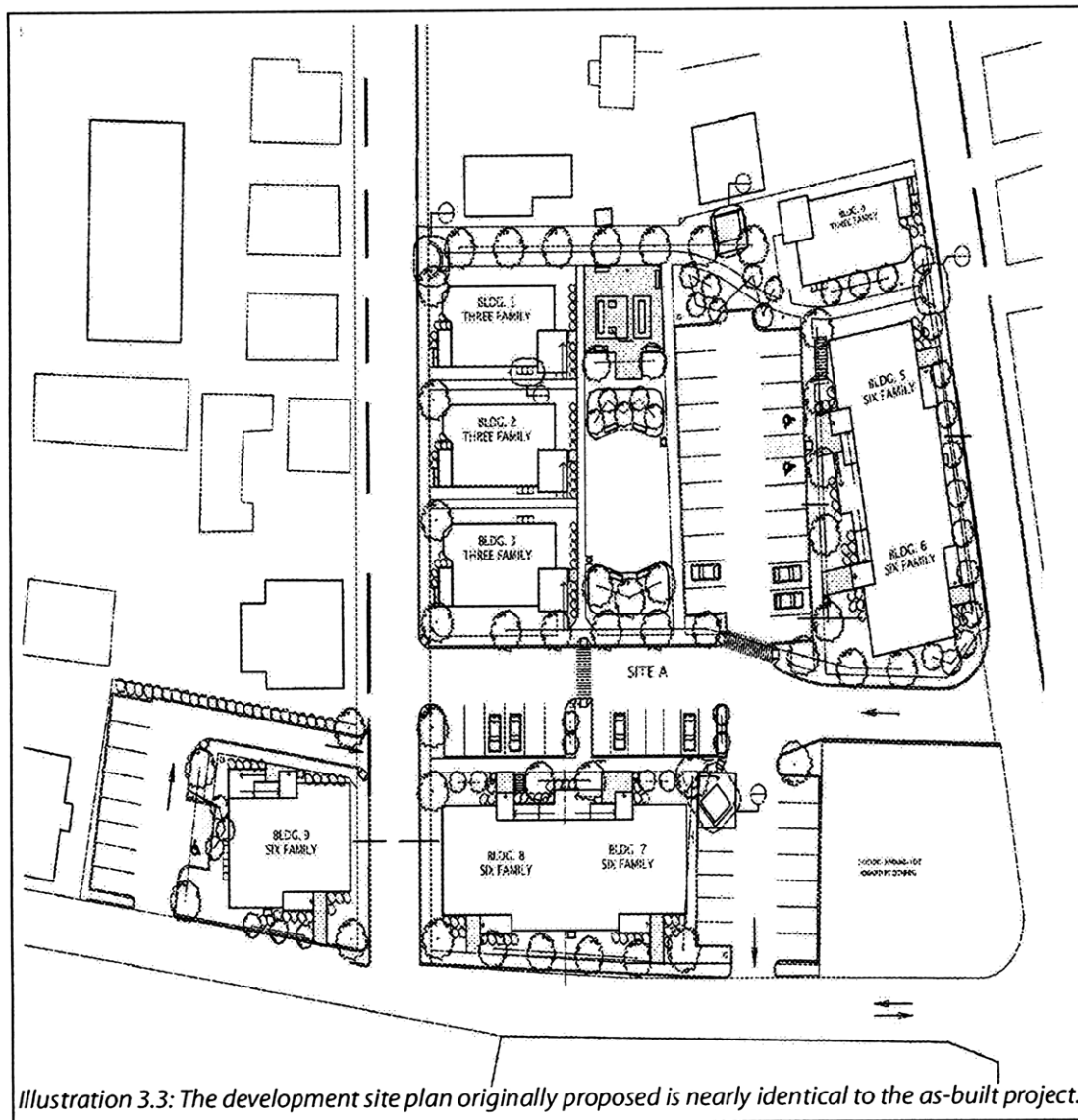
*Density* – All interview subjects identified general objections to density that emerged in their discussions with residents. These concerns encompassed all three additional aspects of our analytical framework: building massing, open space, and parking/access. Herrington says that residents spoke of their objection to the number of units that SCC envisioned, and had fears of large structures overwhelming the triple-decker neighborhood. Soni Gupta who worked as Director of Development for SCC at the time, says a number of residents wanted the benefit of new green space included, to improve on the mostly-paved conditions of the present site. All interview subjects identified strong resident objections to development on the basis of the traffic congestion and parking demand that would be generated by any number of housing units, particularly given the narrow street widths in this neighborhood.

### *Development Proposal*

In December 2000, SCC proposed a 42-unit development, split into 9 different structures. At 1.5 acres, the residential density is approximately 28 units/acre, a slight increase above the

surrounding area. Still, residents had agreed to this proposal before SCC applied for permits, and were satisfied by a number of design elements at focus in this thesis.

*Building form/massing* – According to project architect Iric Rex from Mostue and Associates, one of his main objectives with the SCC project was to reference the standard three-decker housing type that dominates in Linden/Allen/Merriam specifically, and throughout Somerville (and the Boston region) generally. Because of the lot size, Rex was able to divide the proposed 42 units into 9 separate buildings, all three stories in height. The intention with this design was to repair the neighborhood fabric along Linden, Allen, and Merriam Streets by adding structures that are visually consistent with



the neighboring residential uses, as opposed to previously contrasting industrial structures on the site.

While SCC's project would replace all existing uses on the site with residences, it could not of course remove the industrial uses on adjacent properties across Merriam Street and across the southerly Charlestown Street. However, Rex was concerned that the development visual improvement on the SCC lot would be reduced by the maintenance of the adjacent industrial buildings. To address this concern Rex was able to situate four bar-shaped buildings in strategic locations on the property so as to block the development neighbors' and future residents' views of those industrial structures.

*Architectural details* – Contributing to the project design goal of creating a visually consistent project for the neighborhood, the architect included specific architectural details that would ensure the new residential structures would be recognized as the classic Somerville three-decker type. In particular, Rex mentioned the inclusion on bays and cornices similar to those found in the adjacent three-family homes.

*Open space* - Gupta recounted that in the initial planning stages, SCC was very careful to budget adequate funding for a landscaped, and publicly accessible open space and courtyard in the middle of the main property (Site A). During discussions with neighbors, some residents had expressed concern about the impact of large number of children being added to the small neighborhood, particularly given the fact the development was targeted for families. The landscape architect designed a small tot-lot for the Site A, and Leblanc said that an informal agreement was made with the neighbors that the playground would permanently open to non-residents. In total, approximately  $\frac{3}{4}$  of an acre of the site is landscaped.

*Parking, transportation and access* - Parking and access around the site proved to be the more complex consideration in the SCC development. This includes issues of pedestrian access to adjacent parcels, parking availability, and transportation infrastructure development.





*Illustration 3.4: Project architects gave careful detail to designing an active open space despite limited area.*

For pedestrian improvements, the proposal included two specific interventions that were designed with the goal of improving neighbors access to the shopping center adjacent to the east of Merriam Street. Along the

northerly section of Site A was planned a landscaped and lighted footpath that connects the public sidewalk on Linden Street to the center of the SCC development. Along the driveway access in the southerly portion the proposal included another pedestrian node that straddled the width of Site A, providing unencumbered access from Linden Street to Merriam Street. With this configuration residents to the east of the development would be supplied direct access to both the internal courtyard/play area, as well as the nearby shopping center.

Due to the substandard width of the Linden/Allen/Memorial streets, residents in this neighborhood are forced to parallel park half their vehicle on the sidewalk. Therefore the allocation of on-site parking and how to address any variance for a reduction in required parking were critical considerations for SCC. Based on the parking requirement for a residential use in the RB zone, the 42-unit SCC development was required to provide 76 total vehicles. However, the ordinance allows for up to a 20% reduction in parking if the applicant demonstrates to the satisfaction of the Director of Traffic and Parking that the project does not require the full amount. In addition, the ordinance allows a developer to include up to 20% of the on-site parking as compact spaces.

The proposed SCC development included 53 total spaces, approximately 70% of the full requirement. Additionally, SCC proposed an equal combination of 50% compact and 50% full-size spaces. To make the case that this significant reduction was reasonable, SCC pointed to the fact that the development was target to low and very-low income families unlikely to own more than one vehicle per household.

To alleviate the understandable neighborhood concern about increased congestion on Linden/Allen/Memorial streets, SCC proposed a new traffic pattern. This plan would direct traffic one-way from Somerville Avenue southbound to Charlestown Street on both Allen and Memorial Streets. Traffic would then be directed one-way northbound on Linden street to a traffic signal on Somerville Ave. The Director of Traffic and Parking agreed to the SCC proposal, but a complication arose with Charlestown Street. Although used publicly, Charlestown Street was actually a private way held by the owner of the remaining industrial site to the south. In order for the city to legally direct traffic over Charlestown Street, there would need to be an agreement made with the owner.

Ultimately, the SCC development that was approved and built was nearly identical to what was proposed. The developer won approval for the reduction in on-site parking, but was required to provide no more than the maximum 20% compact parking spaces. Unfortunately for SCC's goal, this configuration was accomplished by slightly reducing the size of the landscaped area. Works Consulted

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Levesque, Karen (1/25/2009). *Planning staff memo to Zoning Board of Appeals.* Somerville, MA.

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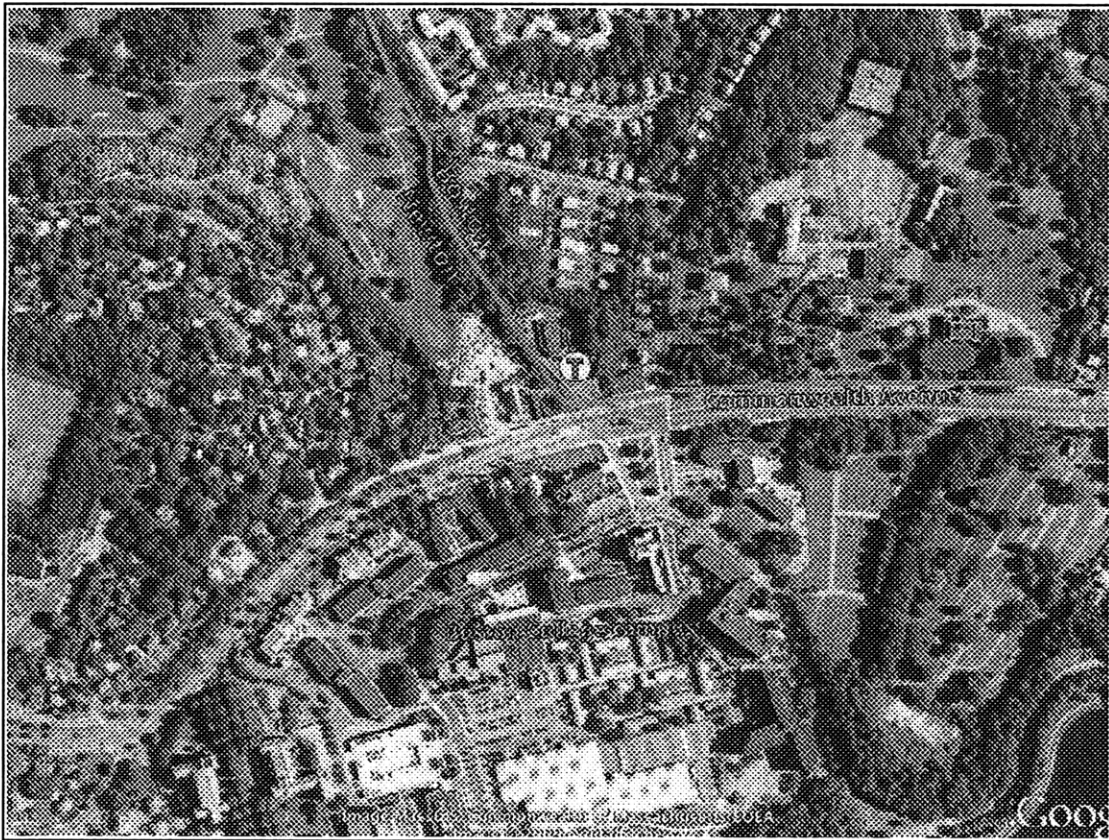
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## Chapter 4

### **CASE STUDY: Newton Commonwealth Residences**

In June 2004, B'nai B'rith Housing New England, Inc. (BBH) acquired the development rights to a residential property in the Chestnut Hill neighborhood of Newton. As an independent not-for-profit organization committed to developing affordable and mixed-income housing in the region, BBH was incorporated in 2003 by the directors of B'nai B'rith Senior Citizens Housing Corporation. While the parent organization had developed three senior citizen projects in the Brighton neighborhood of Boston since 1980, the new organization targeted Newton as the place to launch its mission to build affordable housing in affluent New England communities.



*Illustration 4.1: Urban context of the Newton Commonwealth Development by B'Nai B'rith.*

This particular site is located at 27 and 35 Commonwealth Avenue in Newton, only yards from the Boston city line. The property sits on the edge of Newton, across Commonwealth Avenue from the Boston College main campus. Direct abutters include single and multi-family residential properties to



*Illustration 4.2: The view east towards the more urban setting of Brighton and Boston College.*

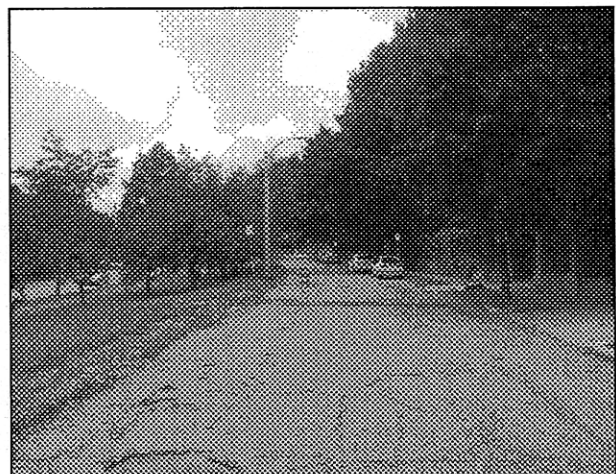
the west, and the MBTA Boston College station and commercial properties to the east. Directly north is the Newton Commonwealth Golf Course. While jointly owned and transferred to BBH, the property consists of two lots as defined by the Newton assessor parcel maps.

The combined site is approximately 62,211 square feet, with over 175 feet of frontage

along the busy Commonwealth Avenue. At the time BBH acquired the site, the larger Parcel 1, at 48,243 square feet, consisted of a vacant single-family property in poor condition. Existing on the 14,968 square foot Parcel 2 was a 12-unit residential building with one office unit.

According to the Newton zoning bylaw, the parcels are located in separate districts: Multi-Residence 1 and 2 respectively. Under this designation, the type of multi-family development examined by this thesis would be impossible to build. While residential construction over two units is allowed by special permit in Multi-Residence 2, it is prohibited in MR-1. The maximum density allowed by right is described in Table 4.2 below.

The first public unveiling of BBH's development plans occurred in February, 2005, when the organization approached Newton city



*Illustration 4.3: The view west to the more suburban context of Newton's Chestnut Hill neighborhood.*

officials and nearby residences with a proposal for a 179-unit, 9-story residential building. This plan was strongly criticized by officials and residents alike, with concerns focusing on the sheer size of the proposed structure and the impact it would have in context of the surrounding residential

Section 30-15 Table 1	Multi Res. 1 Requirement	Multi Res. 2 Requirement	Existing	Proposed
Min. Lot Area Single + 2-Family Dwellings	7,000 sq. ft.	7,000 sq. ft.		
Multi Family Dwellings	<b>Not An Allowed Use</b>	10,000 sq. ft.	63,211 sq. ft.	63,211 sq. ft.
Min. Lot Area/Unit Multi Family Dwellings	3,000 sq. ft./unit	3,000 sq. ft./unit	48,243 s.f./d.s.	<b>1,008 s.f./d.s.</b>
Building Height	30 ft.	30 ft.	Not submitted	47.93 ft.
Building Stories	2 Y2 stories	3 stories	2-3 stories	2-3 stories (existing bidg.) 4 stories (new structure)
Floor Area Ratio Single + 2 Family Dwelling	0.4	0.4	N/A	<b>1.09+/- (based on 65,591 GSF)</b>
Multi Family Dwellings	<b>Not An Allowed Use</b>	...		
Frontage	70 ft.	80 ft.	120 ft.	120 ft.
Front Setback Single + 2 Family Dwelling	25 ft. (Average 12.5 ft.)	25 ft. (Average 12.5 ft.)	14.4 ft.	14.4 ft.
Side Yard Setback	7.5 ft.	7.5 ft.	39 ft.	12 ft.
Rear Yard Setback	15 ft.	15 ft.	112.6 ft.	10 ft.
Max. Bldg. Lot Coverage	30%	30%	N/A	27 %
Min. Open Space	50%	50%	N/A	40.1 %

Table 4.1: Dimensional requirements as required by Newton Zoning Bylaw and as proposed by developer

neighborhood. In response to these concerns, BBH modified their plan in March 2005 by reducing the number of units to 132 although the proposed structure remained at 9-stories.

While these proposals were presented to stakeholders in unofficial public meetings (not covered by public records laws), BBH was clear about their intention to build the structure and overcome the applicable restrictive zoning by seeking a Comprehensive Permit. Otherwise known as chapter 40B of Massachusetts General Law, the comprehensive permit allows mixed-income developers to overcome restrictive local zoning bylaws in municipalities where less than 10% of the housing stock is affordable under state and federal rules. In early 2005, the Massachusetts Department

of Housing and Community Development classified 7.1% of Newton's housing units as affordable.

Unfortunately, because neither of these plans were ultimately approved, the Newton Planning Department was not required by public record laws to retain any documents that describe these initial proposals in more detail. Furthermore, the developer chose not to participate in this research nor provide any documentation of this initial phase. However, descriptive data about these first two proposals can be gleaned from articles in the Boston Globe and the Newton TAB:

- |   |
|---|
| <ul style="list-style-type: none"><li>➤ One building of cruciform-shaped footprint with two projecting wings to the west and east, and one that projects out to Commonwealth Avenue. Graduated height consisting of three towers.<ul style="list-style-type: none"><li>◆ Front tower - 3 stories</li><li>◆ Middle tower - 6 stories</li><li>◆ Rear tower - 9 built stories; 10 stories due to the grade change.</li></ul></li><li>➤ 165 parking spaces on two levels of underground parking</li><li>➤ 2200 square foot programmed play space for children</li><li>➤ Bay windows, "Juliet balconies" and building materials to break up the building facades and reference architectural features of surrounding buildings</li></ul> |
|---|

Table 4.2: Building massing dimensions from the initial development proposal.

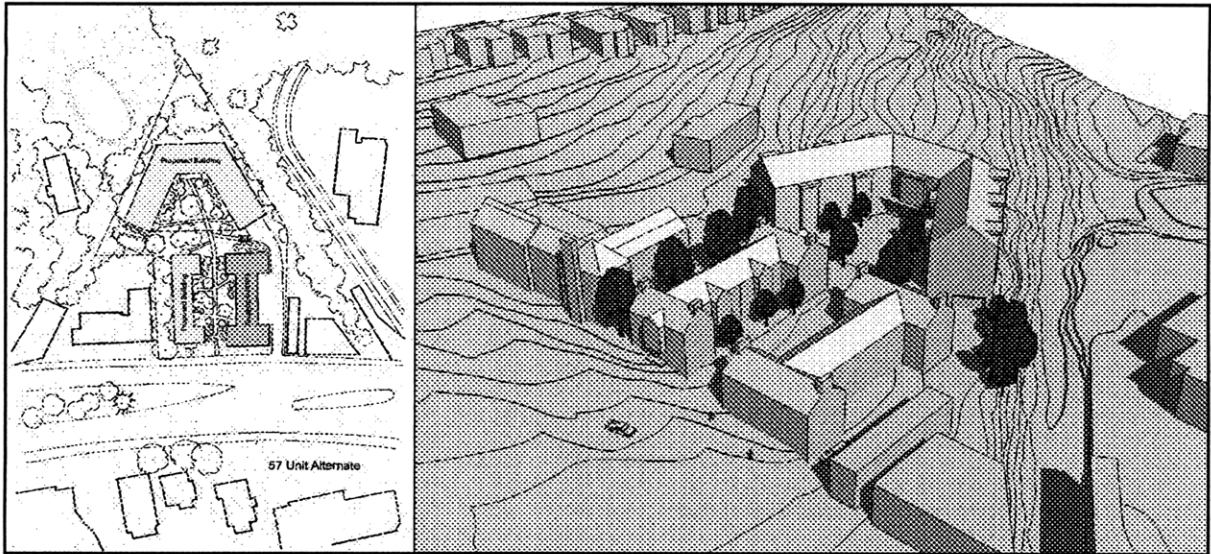
### *Municipal Concerns*

In June 2005, Alderman Lisle Baker from the ward in which this property was located wrote an opinion in the Newton TAB that described the concerns he heard from constituents about BBH's proposal.

*Building Massing* - Since BBH had not reduced the building height, Baker said residents were concerned that the project would be "towering above and overshadowing its [single-family residential] neighbors." In addition, Baker was not satisfied by the reduction in units, suggesting that this density was simply too great for the neighborhood.

*Open Space* - As a result of the massing needed to accommodate the proposed number of units, Baker and his constituents were concerned that insufficient room remained on the site for "open space between its neighbors or for occupants to use on site."





*Illustration 4.4: Images from massing studies to test the visual impact of the proposed high-density housing within the site conditions. In the left map, pink depicts the existing building, and yellow is proposed new construction.*

*Parking and access* - The BBH proposal at this point supplied 165 parking spaces or 1.25 per unit which, according to Baker, was less than the 2+ spaces provided by similar past projects in Newton. While BBH justified this reduction based on the proximity to the Green Line, Baker questioned whether the slow, surface-level train was actually a viable alternative to driving for future residents. He suggested it was not, and feared that residents would be forced to “park in a neighborhood already burdened with double and other illegal parking.”

In response to the concerns raised about their first two proposals, BBH stepped back for nearly a year to reconfigure the development. In April 2006, BBH presented a plan that involved significant reductions in density and building massing as described below. However, the proposed building was still larger than what zoning would allow by-right or special permit on the site, thereby still necessitating the comprehensive permit approval.

After BBH filed their application, Newton Planning Director Mike Kruse sent an advisory memo to the Zoning Board of Appeals, which holds legal authority to grant the comprehensive permit. In this memo he provides technical information and analysis from the planning department’s perspective.

This document intends to assist the ZBA in determining whether the proposed development satisfies the conditions for a comprehensive permit, including the elements of building form and site design at issue in this research.

- Two structures; one on each parcel. Total of 57 residential units. Four stories in height.
  - ◆ Parcel 1 - Retain the existing 12-unit building and convert the one office unit for total 13 residential units. All one bedroom units.
  - ◆ Parcel 2 - Construct new 4-story, 44 unit building.
- Total parking supplied: 94 spaces underground and surface-level
  - ◆ Parcel 1 - 28 underground / 44 surface
  - ◆ Parcel 2 - 10 underground (existing) / 12 surface

*Table 4.3: Specifics of the second proposal.*

*Building form/massing* – Kruse recognized the significant reduction in density since the previous proposals which make it much more appropriate for the context. The height of the proposed new building, while still greater than any nearby structure, is appropriate to accommodate the needed affordable units. He also mentions the developer's decision to retain the existing building which helps improve the project's overall acceptability for the neighborhood. As a brick, 3-story building placed along the parcel's street frontage, the building is mirrored by similar structures on abutting parcels.

*Architectural details* – Kruse highlights the improved facade colors included in this revision. Originally illustrated in bright yellows that would likely contrast with the darker brick that is predominant on nearby buildings, the facade is now detailed with darker colors and materials. While the facade is improved, additional work is needed to



*Illustration 4.4: View from carriage lane into Commonwealth development. Restored building is on the right and new construction on the left. Note the substantially reduced form as compared to the earlier massing study.*



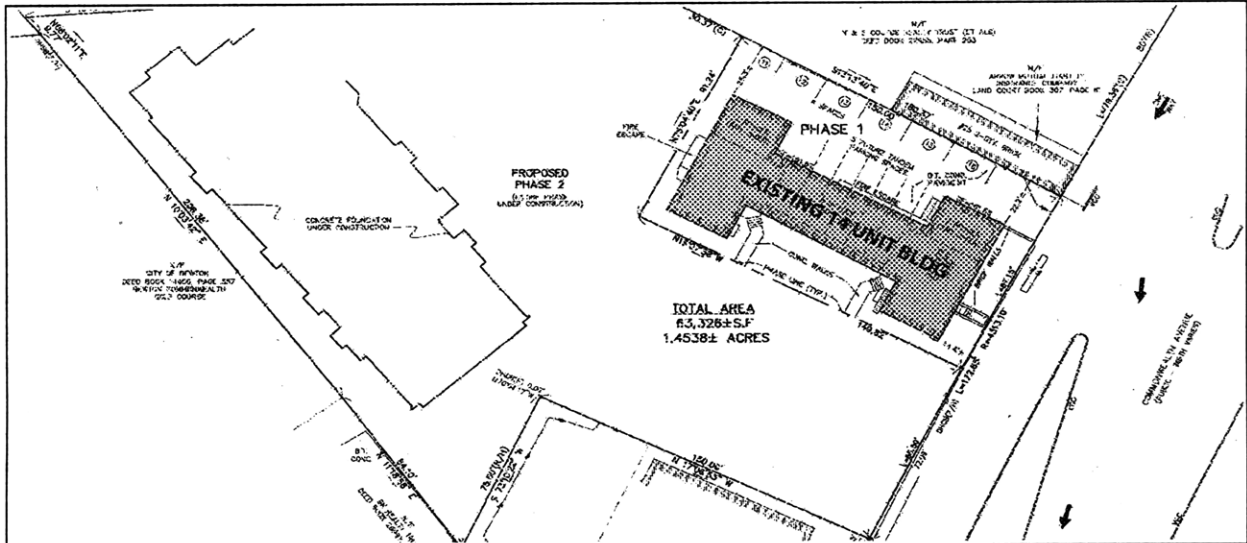


Illustration 4.5: Commonwealth development phase 1 site plan – restoration of existing building.

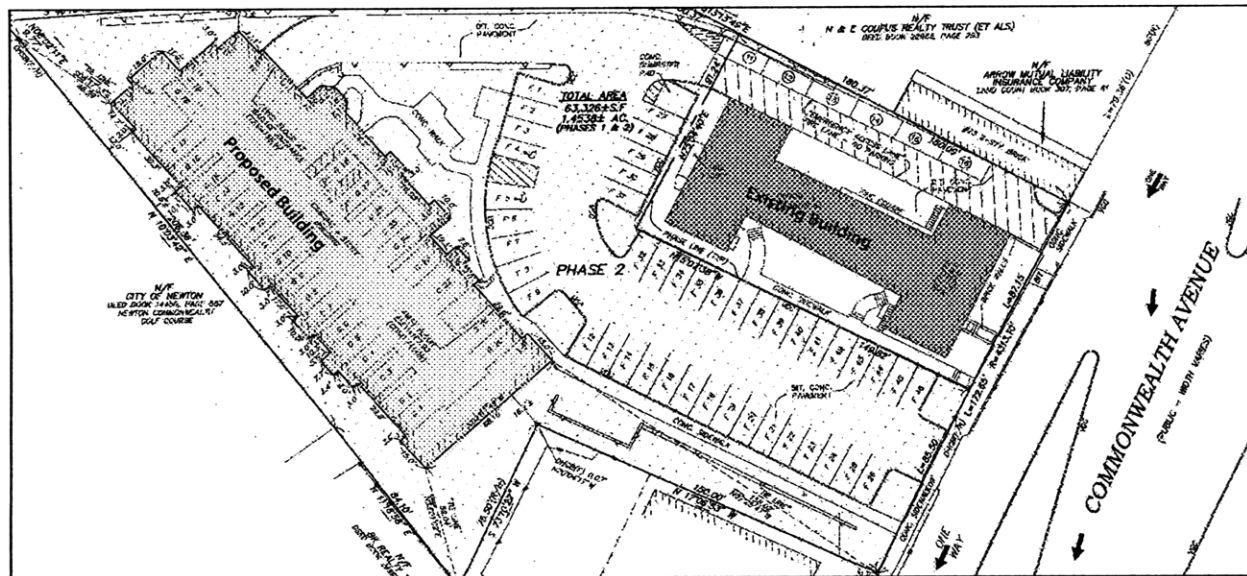


Illustration 4.6: Development site plan phase 2 – new building construction. Notice the inclusion of significantly more detail about parking and traffic circulation on site.

break up the mass which is significantly greater than any surrounding building and magnified by the increased grade at the rear of the property. This would make the building the primary visual feature for drivers entering Newton from Brighton.

*Open Space* – Kruse remained concerned by the very limited open space supplied on-site, approximately 350 square feet at the front of the property. This insufficiency is magnified the poor

landscaping being proposed which includes only small trees and shrubbery to replace large, mature trees that would be removed for construction.

Access and Parking - The plan proposes a 14-foot wide eastern driveway as the main point of access for emergency vehicles. While this is the minimum width allowed by the Newton Fire Marshall, Kruse is concerned about the fact that the site sits on a narrow, one-way carriage lane rather than the main route of Commonwealth Avenue, which already impedes fire truck access. Because the plan includes 7 substandard parking spaces (8'1" in width) that line the east entrance, the Kruse questions whether the lane would be functionally reduced by the presence of parked cars that extend beyond the designated parking stalls. Kruse proposes that BBH eliminate the 7 substandard parking spaces and replace them with planting areas or above ground planters.

### *Public Testimony*

In written letters and testimony at the ZBA public hearing, neighborhood residents described their reactions to the current BBH proposal. These records suggest a division among the neighbors over the massing and form of the new structure on parcel 1-- some residents recognized the significant reduction in building mass since the first proposal, while others continued to oppose the development for fear that sunlight or views would be blocked by the new building. Some discussion of the architectural details emerged, and one resident calls the flat-roof, clap-board style a "travesty" for the area. These external and aesthetic concerns about the proposed building form ultimately had a minor influence on the ZBA. The board decided to adopt the planning department's proposed conditions relating to minor improvements of the new building facade, but judge the scale and architecture of the building appropriate given the public benefit created by increasing the city's affordable housing stock.

On the issues of open space and site access/parking, resident testimony proved more influential in the ZBA's decision. This public discussion elaborated on a conflict of priorities first identified by

Kruse in the planning department report. One group of residents was particularly concerned with the loss of open space. While not happy with the total amount of proposed open space, their testimony made specific reference to the section of the planning department report that recommended BBH address open space concerns by increasing the size and location of new vegetation. Among this group were two residents whose property would border the proposed surface parking lot.

While Kruse was willing to forgive a small amount of parking for more open space and vegetation, residents were less satisfied with this compromise. In particular, many people who testified were concerned about the proposed elimination of the seven parking stalls at the eastern driveway entrance. As the attorney for BBH wrote in one communication, given the tone of this testimony, BBH believed these conditions to be detrimental for the project both in terms of lost revenue and level of neighborhood opposition. However, on these points the ZBA agreed with the planning department report, judging the scale and architecture of the building appropriate given the public benefit created by increasing the city's affordable housing stock.

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# Chapter 5: Case Study – Melrose Station Crossing

The Station Crossing condominium development near downtown Melrose is a fitting case for analysis in this study. Directly abutting the Haverhill Commuter Line, the development is well served by regional rail, accessible to the Melrose/Cedar Park and Wyoming Hill stations less than a quarter-mile to the north or south. This area of Melrose, due to its easy transit access, doesn't just fit the profile of an ideal Smart Growth site. In 2003, the same year that Station Crossing was permitted, the neighborhoods around Wyoming Hills station was identified by the Center for Urban and Regional policy at Northeastern University. In a report "Housing Strategy for Smart Growth and Economic Development" Wyoming Hills area was cited as an example of how smart growth zoning overlay could



Illustration 5.1: Urban context for Station Crossing site in Melrose.

improve areas around existing train stops.

According to the Melrose zoning bylaw, the entire property is located within the Extensive Business BB-1 district. By definition BB-1 is among the Melrose districts most permissible of commercial and industrial use, but prohibits any residential use by-right.



*Illustration 5.2: Two-story, single-family homes predominate in the neighborhood adjacent to Station Crossing.*

The zoning ordinance allows multi-family residential use only by special permit, based on a finding by the planning board that the proposed development would not be a detriment to public good. Under special permit regulations, the by-right density and dimensional regulations of the nearest residential district are applied to any proposed residential use in a commercial district. However, the ordinance does allow an increase in density subject to the conditions of a design review special permit. To fulfill the design review requirements, the increase in density must not only meet the non-detriment



*Illustration 5.3: A view of single-family homes directly adjacent to the Station Crossing development*

requirements of the basic special permit, but the project must provide at least one public benefit, including: open space, affordable housing, traffic improvements, or other amenities. These regulations, although amenable to potential density increases, give the planning board broad discretion over the approval and conditions of any multi-family housing built on this



site.

Station Crossing is located at 16-18 Willow Street, at the northwest intersection with Foster Street. The site is a transition point between the mixed-use Central Business district along the nearby Main Street and the medium-density residential neighborhood beyond the rail line.

Fitting this condition, the property

consists of two individual parcels both committed to separate land uses since no earlier than 1960.

Consistent with the medium-density residential nature of the area to the south and east, the

southernmost parcel along Foster Street contained a three-family Victorian style home built around

1870. Reflecting the commercial Main Street and light-industrial uses north and east of the property,



*Illustration 5.4: The view to the east down Foster Street, looking towards the Melrose downtown Central Business District.*



*Illustration 5.6: The view to the west from Station Crossing, looking past the Commuter Rail line to the senior citizen residential complex in the background.*

the northern parcel was the longtime site of a one-story bowling alley. Despite the site being surrounded by a successful commercial district and low-vacancy neighborhood, the structures on both parcels were abandoned and in disrepair when Station Crossing was proposed.

Station Crossing was first proposed in early 2003 by a private real estate investor who had acquired a purchase option from the former site owners. While the special permit and design review applications were filed officially in July 2003, the first available public account comes from March of that year when the Melrose Free Press reported on preliminary designs that the developer had presented to city officials and nearby residents. According to the article, the developer was proposing a 55-unit condominium complex on the site. The units would be contained within a single, 5-story apartment structure. While the specific figures for height and unit-square footage could not be located for this analysis, even a general reading of the special permit regulations and zoning bylaw suggest that the density and dimensions proposed could not be accommodated by right in the nearest existing residential district. To satisfy the public benefit requirements of the design review special permit, six units would be provided as affordable to income-eligible families. In addition, the proposed on-site parking ratio was 1.6 spaces per unit, less than the required 2 spaces per unit. While the design review authority of the planning board allowed density and building dimensional increases, only the zoning board of appeals has authority to grant variances for the parking requirement. From the initial public conversations, the developer knew that successful completion of Station Crossing would depend on an extensive public review process.

The meetings reported by the Free Press in March were part of a series of negotiations between the developer and area stakeholders, beginning approximately four months before any permits were ever filed with the city. According to the project manager and architect Tom Galvin, the delay between these first discussions and the official permit application was made at the behest of the developer who wanted to avoid any delays in the project after the formal application was filed. Since the scale of the project would necessitate significant municipal regulatory review, Galvin said the team assumed permitting would be delayed if residents expressed strong public concerns at the planning and zoning board hearings. The goal of these early negotiations was to identify the specific resident concerns



*Illustration 5.5: An early illustration portrays the 5-story development first proposed on this site.*

about project that the development team could feasibly address prior to filing permit applications. The developer knew that he could not or would not change all project elements identified as problems. Still Galvin said that knowing this information before would help the developer address the unmet concerns at the public hearing, and explain on record why the remaining problems would not be a detriment to the public good.

In a municipal context, the Station Crossing negotiation process was significant in light of a dispute that was ongoing about a proposed development near the Melrose-Malden line. This project was a mixed-use, transit oriented development near Oak Grove Station on the MBTA “orange” subway-line. With a mix of retail and 500+ residential units (approximately 400 units in Melrose-proper), this development is often used as a model by smart growth advocates. The plan faced significant opposition within Melrose, and some residents founded the Citizens Alliance for Responsible Development (CARD). This group was very vocal during the public comment phase of the Oak Grove permitting. They eventually sued to stop the development after permits were granted. Given CARD’s high profile, the Station Crossing development team planned to targeted them directly in the early development stage.



Although a newspaper article is an imperfect source, the Free Press provides the only available written account of the unofficial, pre-permitting meetings. The article is brief, but covers specific building and site designs elements reviewed during these negotiations. Using this information we can characterize public opinion within the analytical framework proposed for this thesis

*Building Massing* - General concern existed about the "density" and size of the project, particularly in the context of nearby single-family and duplex homes. One planning board member specifically mentioned the unit-per-acre density proposed for Station Crossing (approximately 55 units/acre) relative to the controversial Oak Grove density (39 units/acre). A second planning board member suggested that the developer should consider a different form all together by breaking the massing into a series of three or four story townhouse buildings.

*Architectural details* - CARD representatives were quoted as being "gracious" to developer for accepting their input into the "architectural features" used to reflect Victorian style prominent in Melrose.

*Open Space* – There is no specific inclusion in the Free Press about public reaction to open space or landscape design. The article does mention development attorney statements about "improved stormwater drainage from the site, because it would include more green space and less paved area" than the existing fully-paved bowling alley parcel.

*Parking, transportation, and access* – The article portrays a common perception among neighbors that the development will negatively impact congestion levels on adjacent roadways and intersections. However, the Free Press implies the developer would sacrifice on this top and explained that he has not only "offered to make sidewalk improvements including handicap accessibility...he is also offering to widen Willow Street" for increased capacity.

Tom Galvin continued to lead resident outreach efforts for the developer, and the design was revised beyond what was first described in the Free Press report. The official permit application documents, on record with the Melrose Planning Board, proposes a reduced 48-unit condominium development. The reduction in total units satisfies another neighborhood goal, a decrease in proposed height. Still an apartment block-style building, the total units could accommodate a height reduction to 4-stories or 47-feet. The units would be split into 32 two-bedroom units and 16 one-bedroom units. Ten percent of the total units (rounded up to 5 units)

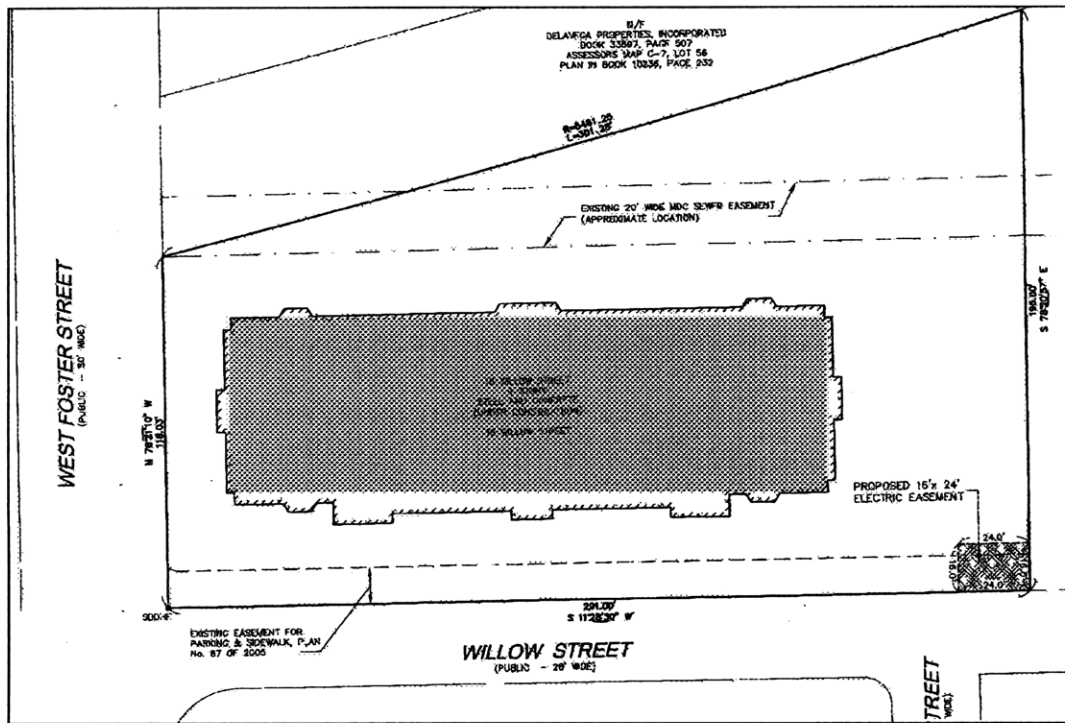


Illustration 5.7: Station Crossing site plan.

would be subsidized for affordable sale to income-eligible buyers.

The dimensional profile of the revised Station Crossing proposal is detailed in Table 5.1 above. This design is consistent with the basic form described in the earlier Melrose Free Press article, but reflects the compromise negotiated between the developer and area residents. Overall massing was reduced, particularly through decreased height and the elimination of some units. However, the

proposed dimensions still met the requirements for Planning Board special permit and design review. In addition, a variance was required because the proposed ratio did not satisfy minimum parking requirements, necessitating simultaneous review by the Zoning Board. The following account focuses on the process and results of the Planning Board hearing since this process was more intensive than that required for a zoning board variance and included a greater level of public testimony.

<ul style="list-style-type: none"><li>➤ Parcel Area: 45,000 square feet (1.04 acres)<ul style="list-style-type: none"><li>◆ Ground Coverage: 0.8 acres impervious area (77%)</li><li>◆ Open Space: .024 acres pervious area (23%)</li></ul></li><li>➤ Building Height: 47-feet (4 stories)</li><li>➤ Total Units – 48</li><li>➤ Total On-Site Parking: 89 spaces<ul style="list-style-type: none"><li>◆ Below Ground Parking: 32 spaces</li><li>◆ Surface-level Parking: 57</li></ul></li></ul>
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Table 5.1: Proposed density and dimensions for Station Crossing

In a 2009 interview, Tom Galvin expressed satisfaction with the way he was able to address resident concerns in the revised designs. In particular, he identified the visual elements that were incorporated to decrease the visual impact of the proposed apartment-block style, and reflect the Victorian architecture that is common in Melrose. The Mansard roof worked particularly well for the purpose, according to Galvin. The curved roofline shields the fourth floor and makes it appear to be a half-story or attic. Now a structure originally proposed as 5-stories looked like 3.5 stories. Balconies were added along the street-facing sides of the building, intended to break up the facade while mimicking the porches common among traditional Melrose homes. Even by the most objective standards, these efforts had a positive impact on the public hearing process: while embroiled in a lawsuit against dense, transit-oriented development in another part of town, CARD announced their support for Station Crossing.



*Illustration 5.8: A revised rendering portrays the development as a 4-story building with softer exterior colors. Although smaller, building form is essentially unaltered since the first vignette.*

### **RESIDENT TESTIMONY**

When it came time for the public hearing in July and August 2003, the early focus on inclusion did not pay the direct dividend of unified public support. Primary documents such as meeting minutes and email communications paint a very mixed picture of resident opinion. This analysis is supported by a Boston Globe article published July 31, 2002, headlined: "Reviews Mixed for 48-Unit Condo Project." Again, the analysis of public testimony is aided through application of this paper's analytic framework.

*Building massing* – Residents still expressed general concerns about "density" and "height". One property owner in e-mail prior to public hearing is concerned that the proposed design is a "monolithic" structure that would "not be an asset to the neighborhood or city" [original emphasis]. This is the first account of neighbors using building mass in a neighborhood context to explain their opposition. Another resident's testimony talks about the "negative esthetic impact" caused by a building this "dense and high," and the "fortress effect" it would have on the stretch of Foster Street between the adjacent 6-story senior housing complex and the future Station Crossing. There was a

related argument quoted in both Globe article and Planning Board minutes from people opposed to encroaching “urban feeling” of Malden and Revere-like “city streets” upon the “small town” character of Melrose neighborhoods.

However, there was obvious division among residents in their perception of the apartment-style complex. One resident who identified herself as an employee of the Cambridge Community Development Department testified about her support for “urban feel”. Other residents agreed, calling on City of Melrose to encourage high-density residential development in appropriate locations like this, served by transit and walking-distance to services.



*Illustration 5.9: Station Crossing towers over neighbors in form, but the impact is reduced by variations in facade materials and coloring as well as landscaping to soften the front setback.*

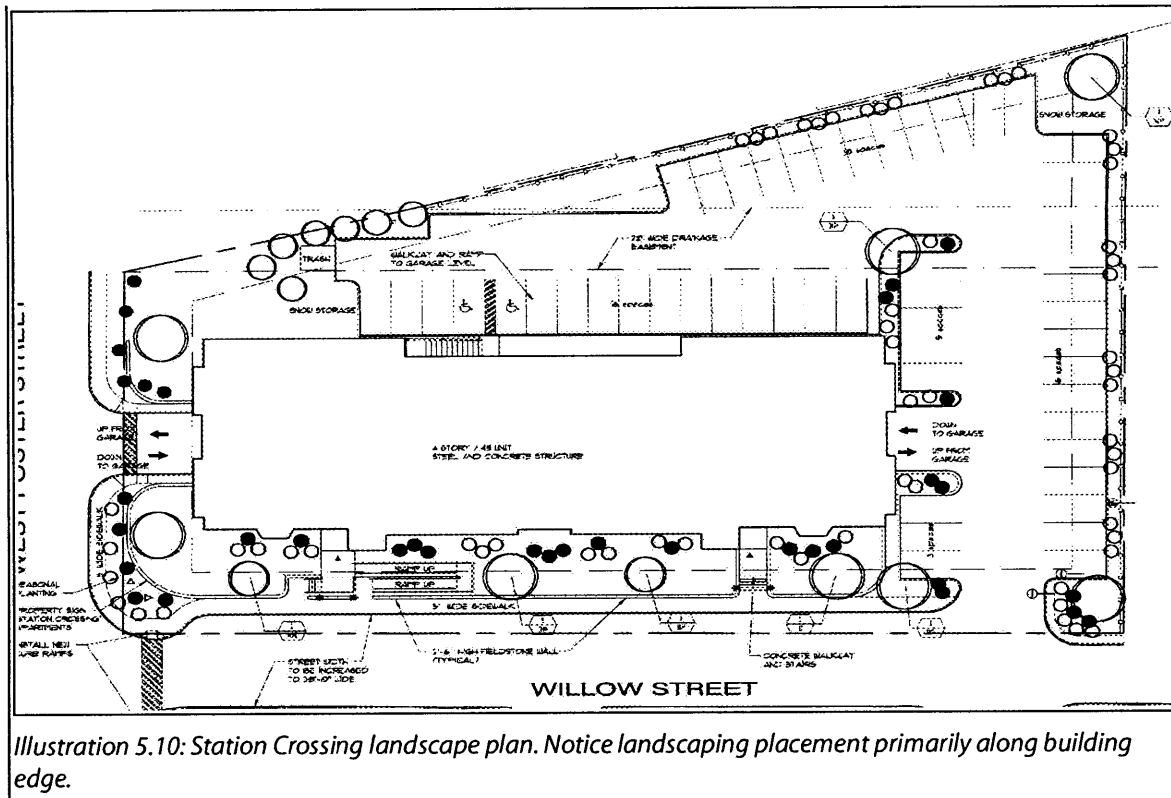
*Architectural details* - Residents continued to thank developer for sensitivity to “community concern,” describing the visual quality as “well-designed and aesthetically pleasing.” Beyond general praise, there was very little mention of specific architectural details by project opponents or proponents. Representatives of CARD renewed their support for the project, praising the developer for specific making specific changes in facade materials and fenestration design. However, neither meeting notes nor newspaper accounts describe further specific discussion on this topic.

*Parking, transportation, and access* - Substantial concern was raised by residents about the potential impact on traffic circulation around the site. As was discussed in the early negotiations, the narrow width along Willow Street in front of the property again arose as a concern to some people.

Many residents were skeptical of the traffic engineer estimates that this development would not cause any substantial increase in congestion on adjacent roads. While the developer intended to address some of this with the Willow Street widening, many residents also focused on the potential for inconvenient and unsafe backups at the railway crossing.

The hearing documents identify a third line of testimony about traffic and circulation impacts as a concern to residents on adjacent street, rather than those directly adjoining the parcel. According to these comments, under present conditions drivers hoping to avoid traffic congestion or speed enforcement along Main Street use roads like Cottage Street and Essex Street. Residents on these blocks seek assurance that this situation will not be exacerbated by new traffic generated from the development or due to the widening of Willow Street.

The standard for special permit approval in Melrose is prescribed by the city bylaws and is the fundamental legal and conventional basis of zoning in the United States. The Planning Board had to ensure that this proposed residential development in a non-residential district would not be detrimental to the public good. Despite the outreach efforts of previous months, the discussion presented during public testimony highlighted significant division among residents over the basic question of how to fit a project of this design into the context of this particular district. There is of course legal precedent and standards to apply to such decisions, and the singular existence of strong opposition is not cause enough to deny permits. However the number of units proposed for Station Crossing was greater than the density allowed by right. Since the project design and dimensions made were subject to extensive public review, the Planning Board would have discretion to approve permits subject to extensive conditions or other limitations. Although neighborhood opposition is not necessarily the most fundamental legal rationale for denial of this kind of project, it was in the developer's best interest to refute the potential hazards identified resident testimony.



In their own testimony before the Planning Board, Galvin and the project attorney Richard Conn took the opportunity to explain why the current proposal would not be a detriment, and would actually help increase public good in Melrose. The most direct way of explaining this impact is based on the decision to make 10% of the units affordable for sales to income-eligible homebuyers. However, the inclusion of 5 subsidized units does not directly address the concerns about impact on visual quality or traffic congestion nearby. In characterizing the impact of building and site design, as previously mentioned Galvin explained that stylistic details could be used to minimize the perception of a relatively large structure overwhelming smaller buildings nearby. The quality of architectural details was also used by Galvin to address the sense of urban buildings overtaking the suburban character of Melrose neighborhoods. As residents pointed out, just over the tracks on Foster Street was a large senior citizen housing complex. However, according to Galvin -- instead of creating a wall of apartment structures -- Station Crossing is designed in reference to the lower-density housing

types. The inclusion of the Victorian-style elements relate much better to smaller buildings than do they two adjoining senior buildings, both standing 6-stories with solid “brick box” facades that are reminiscent of post-war urban public housing developments.

Focusing on the more tangible external impacts that some residents feared, project proponents used the language of sustainable, transit-oriented development to address concerns about the potential impact on traffic and parking near the site. Galvin and the developer’s traffic consultants explained that the density was not too great for the area and could easily be accommodated by the existing transit availability. With two commuter rail stations providing 20-minute access from the neighborhood to downtown Boston, the team was confident that 15% fewer vehicle trips would be generated from the site during peak hours. There does of course remain the fact that, even reduced by 15%, the number of trips generated would still exceed the amount currently produced by the site’s abandoned structures. To allay these concerns, which had previously emerged during the earlier community meetings, the developer committed in the permit application to pay for the widening of the Willow Street roadway and sidewalks.

### *PLANNING BOARD REVIEW*

The Planning Board process for special permit and site design review lasted nearly three months over the summer of 2003. Over the course of that review, the board hosted at least three public on-the-record public hearings and two additional open meetings after the close of public comment. Because the regulations for design review are explicitly included in Melrose town bylaws, the official record of Planning Board approval includes an extensive outline of the major issues considered during this process. The main planning board considerations that fit within the analytical framework for this thesis are outlined below.

*Building form and massing* – The board found “the project to be sized and configured



appropriate for the site," especially with "reasonable setback from public ways. The overall finding describes the "applicant to be cooperative in responding to design suggestions." In particular the reduction from 55 to 48 units and "associated reduction of one floor will...make the building a better neighbor" according to the report.

During the review process, but not included in the final report, two different Planning Board members expressed their displeasure with the massing and units all combined into a single block apartment style building. One member restated his desire for the massing to be reconfigured into multiple smaller buildings and expressed concern that the developer relied too heavily on fenestration and facade detailing to break up the overall mass.

*Architectural details* – The report describes the board as, "not universally in favor of the neo-Victorian architecture" because of possible risk in "poor execution resulting in an unfortunate copy of historic forms with obviously superficial decorative elements." However, the board did agree that the building is respectful of 19th century style throughout Melrose and therefore an acceptable element of the overall design.

*Open space* - The board recognizes positive net change in the amount of lot coverage, with an increase from .06 to .24 acres of pervious area. However, the board does express concern about the project "lacking more significant open space on the lot" that might have been possible with another building form. The remaining open space is "attractively landscaped and finished," noting especially effective use of plantings to screen resident parking from view and block vehicle headlights from disturbing adjacent homes.

*Parking, transportation and access* – There was general agreement among the Planning Board with developer assertion that the proximity to rail makes density more appropriate. Despite the frequency of traffic-based opposition from residents, Board agrees it reasonable to assume "residents will likely

avail themselves of nearby commuter rail service when reasonable and use their cars less than those [people] living further from the rail corridor.” Similarly, the proximity to downtown Melrose is an asset for the development, allowing further reduction in vehicle use when people can easily walk to basic retail and services.

Remaining from previous discussions was the specific concern the development's impact on adjacent streets. Cottage and Berwick Street are often used by people hoping to avoid the traffic on Main Street and the board agreed it could be exacerbated, even if main impact is not from new traffic generated by the development. To address circulation concerns, Planning Board solicited input from the Chairman of the Melrose Traffic Commission. As a result, board compiled a list of traffic-calming conditions that the developer must comply with before a Certificate of Occupancy could be issued, including: tree plantings and signage on Cottage street to fill open space along traffic lanes, plantings to mitigate headlights shining into neighboring homes, widening of Willow and Foster Street sidewalks, and the widening of Willow Street right-of-way to accommodate a parking lane where there previously was none.

Although the parking was a frequent topic of concern in resident testimony before the Planning Board, the number of spaces proposed on-site for Station Crossing could proceed only with Zoning Board approval. The development proposed a total of 89 parking spaces -- 32 spaces below the building, and 57 above ground in a parking lot built on the western side of the lot. With 48 units, these figures represent a parking ratio of approximately 1.85 spaces per unit, less than the minimum 2 spaces per unit provided for in the bylaw. Based on the development's proximity to commuter rail stations, as well as the significant conditions for traffic calming imposed by the Planning Board, members of the Zoning Board of Appeals voted to approve the variance.

While the Planning Board conditioned their approval for Station Crossing on the developer's

fulfillment of traffic-calming interventions, the building and site design plans hardly deviated from what was proposed in the first permit filing. According to Melrose Planning Director, Denise Gaffney, the relative ease with which Station Crossing received permits (especially in contrast to the Oak Grove conflict) was due in no small part to the outreach efforts Galvin made to neighbors on behalf of the developer. But the success of such efforts only goes so far, and the plan still had its detractors at Planning Board hearings. However, Gaffney said one of the most important features of Station Crossing is the example it provides to Melrose residents of “positive density” for sustainable urban development. She says that many Melrose residents’ conception of higher density housing and transit-oriented development is formed mainly by the conflict surrounding the Oak Grove development. Station Crossing, on the other hand, is a strong example of the ideal conditions for density. While fairly small in size, this site is able to accommodate a residential building form uncharacteristically larger for the neighborhood, due to the proximity to transit and the pedestrian appropriate distance to the downtown commercial district.

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## **CHAPTER 6: Analysis**

The following series of charts draw from the data in each case in order to recommend the most important priorities for building form and site design of urban high-density multifamily development.

	<b>Somerville</b>	<b>Newton</b>	<b>Melrose</b>
<b>Building Massing</b>			
Density	1.5 acres + 43 units = 28 units/acre	1.42 acres + 57 units = 40 units/acre	1.04 acres + 48 units = 46 units / acre
Height in Context	3 stories around 2-3 story existing homes	2 floor existing building 4 floor new building versus 2-3 floor buildings nearby	Single 4-story building near primarily 1 -2 floor homes
Building type	Three-decker style in 9 buildings of 3-6 units	New construction is single block apartment style,	Single apartment-block style structure
Building layout	Buildings line street perimeter with small setbacks to align with nearby homes	Existing building remains along street frontage for visual consistency; new building at rear to limit visibility from street	Placed at corner edge of lot with slight setback for landscaping

*Table 6.1: Building massing comparison between the three case studies*

<b>Architectural detail</b>	<b>Somerville</b>	<b>Newton</b>	<b>Melrose</b>
Colors	Variation in color, muted pastels	Existing building red brick, common for area New building dark red & tan to mimic nearby color palate	Mixed brick-tone red and grey.
Detailing	Bays and cornices, rear open staircase/porch	Variation in facade materials on new building to break visual impact of large mass	Mixed facade materials reference varied building styles nearby
Details in context	Visual continuation of streetscape defined by existing homes	Retention of existing building presents consistent streetscape, transition from urban Brighton to suburban Newton	Neo-Victorian architecture intended to invoke common style in other parts of Melrose

*Table 6.2: Comparison of architectural details utilized in each development case study.*



*Illustration 6.1: This photograph illustrates how the existing building at Commonwealth helps extend the existing streetscape. The brick building in the foreground is not part of the development, while the nearly identical structure in the foreground establishes the project's visual identity along the street frontage.*

<b>Open Space</b>	<b>Somerville</b>	<b>Newton</b>	<b>Melrose</b>
Lot coverage	Approx. 25% landscaped >75% open (incl. parking)	Less than 5% pervious surface	Approx. 23% pervious surface
Programming	Tot lot, courtyard, lawn	Limited landscaping or no program	Small lawn and limited plantings
Location	Central on main lot, with neighbor access encouraged	Mostly inaccessible behind new building. Developer offset with tree donations to adjacent golf course	Located in front setback; provides privacy for residents & neighbors.
Previous use	Previous use all paved	Previous use had more permeable space, large mature trees removed for construction	Previous use all paved.

*Table 6.3: Comparison of open space allocation and landscaping on each site.*

<b>Parking &amp; access</b>	<b>Somerville</b>	<b>Newton</b>	<b>Melrose</b>
Parking per unit	53 spaces = 1.26 space/unit Failed in attempt to increase number of compact spaces	94 spaces = 1.65 spaces/unit Slight decrease from zoning requirement	89 spaces = 1.85 spaces/unit Slight decrease from 2 space/unit zoning requirement
Parking location	Central on main lot, direct access from units	Most ground area dedicated to parking. Below-grade parking in each building	Parking subordinated behind structure, some below-grade
Alternate access	Network of paths improve neighborhood access to adjacent retail	Adjacent to end of Green Line. Limited pedestrian access from public sidewalk	Accessible to 2 Commuter Rail stations, short walk to Melrose central business district
Vehicle circulation	Access to site from east and west (2 streets) reduces congestion on any one road	Most site area dedicated to parking and vehicle circulation	Developer was required to widen Willow Street for more parking and increased circulation

Table 6.4: Comparison of parking, transportation and access issues for each development.

### *Building Massing*

On these types of small urban infill sites, higher densities will be accomplished by building up. Although specific heights will vary, in the previous cases the greatest density was created in Melrose, the tallest building and smallest parcel. By dispersing the units into many buildings, the Somerville development creates the lowest density

When possible and appropriate existing buildings should be retained to help establish a project's continuity with its surrounding urban context. This was the case in Newton where the existing building promotes a continual streetscape along the carriage lane, drawing focus from the large, new building in the rear. Since density is increased through height, it may be necessary to design new buildings like in Newton or Melrose that are significantly disproportionate from the surroundings. Whenever possible, these larger structures should be visually subordinate to existing buildings, large trees and vegetation, or other breaks in sight lines.

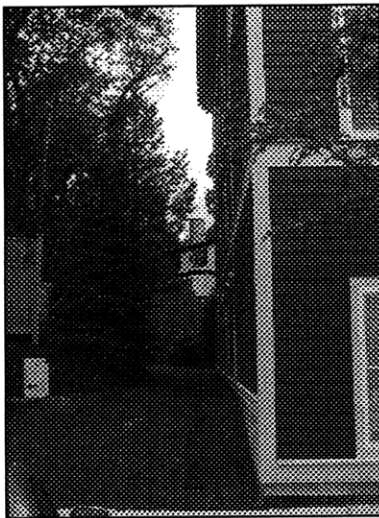
### *Architectural details*

Specific architectural details can be used to establish an appropriate urban or suburban

presence for a project. Since the restrictions on the Melrose site greatly limited that design, the sloped design of the Mansard roof reduced the overall visual impact of the building so that 4-floors would appear as 3 or 3.5 levels. In addition, the neo-Victorian design references an architectural design that is frequently found in more suburban parts of Melrose.

## Open space

Although limited by the availability of land, the goal of any high-density multi-family development should be to increase



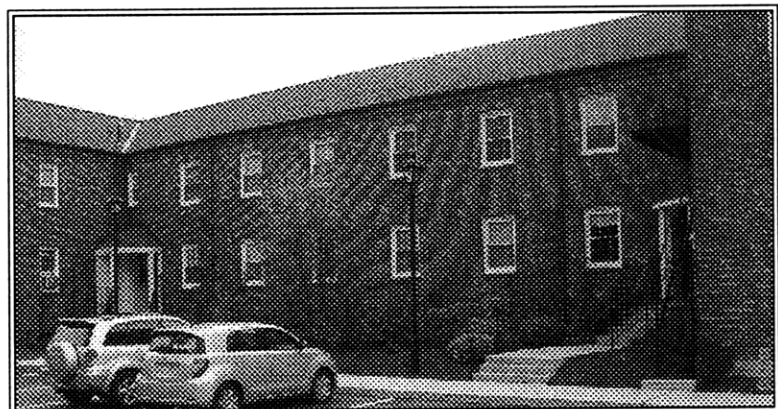
open-space and permeable ground coverage on site. The allocation of open space may be utilized to influence neighbor and other stakeholder



perceptions of a proposed development. Even with the most severe restrictions on land, efforts should be made to increase resident and neighborhood view and access to open space. A condition such as in

Newton where space is limited and inaccessible may create the perception that a development is hastily designed or of low quality.

A high-quality open space will still negatively impact neighborhood perception of a development if people feel they cannot or should not utilize the space. If appropriate and safe for new residents, consideration should



*Illustration 6.2: The Newton development has little on-site open space, and that which is available is unusable or inaccessible.*

be given to strategies for drawing neighbors and other stakeholders into the property.

Pre-existing site conditions may actually be a benefit to infill development, particularly if the project replaces a mostly impervious, non-residential use. In both Somerville and Melrose, even limited open space was a great improvement on the previous, fully-paved industrial uses.

### *Parking & access*

Increasing access to the site will not only benefit neighbors perception of the new development. As in the Somerville case, infill development should be designed to promote outside access through the site, particularly when such paths may provide short-cuts to nearby retail or other services within a reasonable pedestrian distance.

Parking continues to be a sticking point for multi-family development, a dilemma that is far from answered in this analysis. However, neighbors and regulators may be willing to reduce parking requirements if they perceive an obvious benefit for the community coming from the proposed development. Whether the benefit is more affordable housing, better pedestrian access, improved safety or visual appearances, such negotiations may help increase the amount of land available for open space in higher-density projects.



## Chapter 7: Conclusion

### *Building form and massing*

The Covenant Residences project in Newton is the most controversial development case reviewed in this research. While the themes that arose during the planning process were present in the Somerville and Melrose cases, this example provides the most drastic reconfiguration of building form and massing from the initial proposal to project approval. Depending on the perspective an outside reviewer takes, there are a number of ways to characterize the reasons for these significant changes. On one hand it seems B'nai B'rith Housing was far removed from the adjacent residents when making their first proposal. As a result, even the most ardent supporter of multi-family housing would have a hard time arguing that the initial 100+ unit development was most appropriate for the neighborhood context. On the other hand, despite the evolution in project design throughout the process in response to neighbor concerns, a number of residents continued to express ongoing opposition to the project.

While the building dimensions first proposed in Newton are far greater than anything publicly considered in the other cases, we do see a similar situation emerge during the planning of Station Crossing in Melrose. Without a gigantic initial proposal to help frame their opposition there is a thread of controversy about how the new project will change the suburban feeling of the neighborhood when considered in context with the nearby high-rise elderly housing complex. While this argument never gained much steam and was muted by the developer's willingness to negotiate on architectural features, once again we see how personal concerns and perspectives may run counter to critical regional and national development goals.

While the purpose of this thesis is not to direct blame, this controversy uncovers a critical dilemma that future dense, multi-family housing developments will face in significantly built-out neighborhoods. Unfortunately, the scope of this research is unable to answer the nagging question – how to balance the need for increased density in urban core suburbs while adequately addressing residents’ concerns. Is it necessarily appropriate to settle on the middle ground between the extremes of developer goals and resident opposition? The ideal of densification as a smart growth tool is rooted in regional concerns about inefficient and inequitable land uses. Existing residents near proposed multi-family developments are focused on the immediate concerns of how a project will impact their neighborhood, and may not view the project with the appropriate regional lens. A similar concern could be raised about developers who may be motivated by fiscal concerns to propose high unit densities that help their bottom line but really do have significant negative impacts for the immediate community. The answers to these questions are not easily available, and therefore warrant further exploration by researchers in this field.

Somerville provides a useful model for considering a new approach to this type of development that more closely reflects existing building forms while adding critical new housing supply in areas well served by existing infrastructure. The building massing and placement mimics the surrounding residential pattern – triple-decker buildings attached and detached, along the parcel frontage with minimal setbacks. This limits the overall density, but by utilizing mostly attached dwellings (6-unit buildings) they do add a significant number of new residential units to an already dense neighborhood. This building configuration allows for significant internal concentration of land on the parcel, to accommodate an active open-space/courtyard as well as parking and internal vehicle and pedestrian circulation.

## *Architectural details*

Obviously it is not possible to draw broad conclusions about particular architectural details that are most appropriate for multi-family housing throughout the suburban inner-core. The Victorian inspired Mansard roofs and front balconies of the Melrose project drew praise from residents there. However, if implemented in Somerville these elements would be visually incongruous with surround housing types and could have sparked more significant protest from adjacent residents. When viewed in whole, these three cases highlight two broad categorizations of architectural detail types and impacts.

At a basic level, simple details such as façade materials or colors, fenestration, or use of cornices and bay windows are limited in their potential for drastically improving regional conditions for dense multi-family housing. By no means are these elements meaningless – in Melrose the architect drew praise from groups that had opposed other higher density projects in the city, due in large part to his willingness to negotiate these features. But details that reflect traditional regional architecture can not hide a single-structure, 5 story, 48 unit development in a neighborhood dominated by 1 and 2 unit homes. Such basic design details were a minor element in the Newton project, but given the ongoing animosity between neighbors and the developer, it seems unlikely that more focus on materials or colors would have drastically altered the development outcome.

While façade detailing and other basic design elements were implemented in the Somerville project to reflect the traditional triple-decker, the project also incorporated more meaningful features that toe the line between detailing and building form. Most significant in this regard is the placement of building and unit access at the front and rear of most buildings on the site. The street-facing buildings incorporate a front entrance, this preserves the visual congruence along the residential block, from old buildings to the new development. At a

more meaningful level, this pattern contributes to Jane Jacobs' proverbial "eyes on the street" by filling in the vast empty space previously created by the internal concentration of warehouse-type buildings. This helps a design that is visually consistent, but more significantly addresses safety concerns neighbors raised during the planning process.

In addition to the front entrances, each building incorporates a rear entrance designed as open-air staircases with direct access and views to the internal parking lot and courtyard. From a visual standpoint these staircases look nearly identical to the wooden porches common at the back of many triple-deckers. Not only do these structures improve the visual quality of the project for its neighborhood context, but the design serves a functional purpose by increasing activity within the areas blocked by the street-aligned buildings. The rear entry ways provide direct access to the pedestrian pathways that improve pedestrian access to the nearby shopping center from adjacent parcels.

These design features are both notable and noticeable aspects of the Somerville project, but they do not serve merely an aesthetic purpose as the term "architectural details" might imply. When considered through the framework used in this research, the success of these higher-level architectural details is based on the functional role they serve to support the more meaningful aspects of open space preservation and neighborhood access.

### *Open space & Transportation/access*

The purpose of establishing a four-pronged framework for analysis in this thesis was to create some semblance of order for effective study of the complex design processes of real estate development. This structure runs the risk, however, of seeming overly simplistic and presuming the various elements of building and design occur in a vacuum. Upon reflection on these three cases, it is striking to notice how this seemingly rigid framework effectively

confirms how complex the relationship is between the four design elements. It is particularly striking to review how similarly and consistently dilemmas emerged in each case over the provision of open space and landscaping, versus the perceived need for on-site parking and adjacent roadway improvements. These dilemmas highlight some of the strongest barriers to increased multi-family housing development in Boston's inner-ring.

The situation is one of limited resources – by definition the developable land in the inner-ring is limited and in the cases reviewed here are bordered by adjacent active uses in most directions. Non-profit and for-profit developers alike have limited financial resources available to go below a certain density before the development becomes unprofitable or unaffordable. Roadways in these old, already dense suburbs place great limits on the availability of parking given contemporary private vehicle ownership rates. The list goes on, but in each development case study, these limits effectively produce a situation in which new traffic and parking demands can only be met through significant unintended restrictions on open space provision.

To review briefly: Newton chose parking and vehicle access. Existing neighborhood residents were concerned that the new development would restrict their parking supply which was already hampered by the close proximity of Boston College. This perception faced little opposition even from the developer, and the site was configured to maximize parking and the limited open space provided was relegated to areas like the rear of properties behind buildings with limited access for residents and neighbors. To address the open space provision which even city documents admit is inadequate, the developer contributed to tree plantings in the adjacent golf course. Understandably a benefit for golfers in Newton, this way of dealing with limited land for open space is unlikely to become an effective model for most other towns in Boston's inner-ring.

In Melrose, the Station Crossing development actually increases the amount of green space provided on the site, given the fact that the prior use covered nearly 100% of the site with impervious materials. Still, the high demand for on-site parking could only be met through severe limits on adequate open space, and most of what is provided are small and mostly-inaccessible plantings used to shield electrical boxes and other equipment.

Somerville does the best in this regard – with the building alignment along street-facing parcel edges, a significant concentration of area remained available in the center of the main Parcel A. This design includes open space lawn, tot-lot, pedestrian paths within the parcel and from adjacent properties. Admittedly this was accomplished with a relatively significant reduction in parking requirements, due mostly to the perceived reduced parking demand in a 100% affordable development as compared to market rate. The decision to grant a parking waiver was a good one, but may significantly hamper future multi-family housing development possibility in this region if such allowances are only granted to affordable housing developers.

Context is critical to consider – the Melrose project is between two commuter rail stops, only a block from main street. It is an ideal location for smart growth style development in existing core cities. The developer here was granted some parking relief, but the city planner Denise Gaffey admitted in an interview that the city could have done more. Not only were they swayed by local concerns about the increased parking demand, but many residents feared the impact on traffic congestion around the adjacent railroad crossing. Gaffey says these fears have not come to fruition.

The Newton development, as seems to be the case in this research did the worst. The property is literally adjacent to the Green Line. Public officials raised legitimate questions about the efficiency of the Green Line as alternative to private vehicles. This touches on other

critical infrastructure design and maintenance issues not even addressed in this research.

In addition to the demands for parking, we see a consistent development hurdle emerge in each case over the configuration of roadways adjacent to proposed multi-family developments. In each case roadway conditions were of significant concern to residents, regulators, and developers. Melrose actually widened a substandard road to increase traffic flow. Efforts to reduce congestion in the Somerville case were temporarily thwarted when it was discovered that a street providing direct access to the site was actually a private way through which the city could not legally route vehicles. In Newton, a carriage lane presumably configured long before modern fire trucks reduced both the open space/landscaping and the availability of on-site parking.

While circulation and configuration of public right-of-ways is beyond the original purview for this research, it is notable how frequently these issues arose in the prior case studies. From the perspective of Smart Growth, sustainable development goals may be negatively impacted if the assumed intervention is to improve vehicle access. Increased capacity for driving and vehicle storage defeats the purpose of building in areas well served by transit and pedestrian-accessible services. This also reduces the feasibility of low impact development and other sustainable site planning techniques that aim to reduce impervious urban surfaces.