



DENSITY THROUGH DESIGN

A SUMMARY OF THE 495/METROWEST
PARTNERSHIP'S HOUSING DENSITY PROJECT



A PUBLICATION OF THE 495/METROWEST PARTNERSHIP, INC.

200 Friberg Parkway, Suite 1003 • Westborough, MA 01581 • Phone: 774.760.0495 • Fax: 774.760.0017 • www.495Partnership.org

Acknowledgements

This report was written by Adam Ploetz, AICP, the Partnership's Manager of Sustainable Development Programs.

The author wishes to express his thanks to the graduate students from the University of Massachusetts Amherst's Department of Landscape Architecture and Regional Planning for the extensive research that provided the foundation for this summary. Special thanks are given to the University of Massachusetts faculty who advised on this project including: Assistant Professor Elisabeth Hamin, Professor Dean Cardasis, Michael DiPasquale of the Community Planners Training Collaborative and Graduate Assistant, Nedim Kemer.

The author would also like to thank the following individuals for providing review and insight throughout this project and to drafts of this report: Susy Affleck Childs, Administrator, Town of Medway Planning Board; Elisabeth Hamin, Assistant Professor, University of Massachusetts Amherst, Department of Landscape Architecture and Regional Planning; Kathy Joubert, Town Planner, Town of Northborough; Jody Kablack, AICP, Director of Planning and Community Development, Town of Sudbury; Mark Kablack, M.A. Kablack & Associates, P.C.; David LaPointe, RLA, Beals and Thomas, Inc.; Lauren Rosenzweig, Selectwoman, Town of Acton; Senator Pam Resor; Andy Rodenhiser, Chairman, Town of Medway Planning Board; Ron Roux, Owner, Hallmark Companies; Beth Rust, Community Housing Specialist, Town of Sudbury; Glenn Trindade, Selectman, Town of Medway; Chris Vericker, Vice President, Middlesex Savings Bank; and Ralph Wilmer, AICP, Senior Planner and Project Manager, Vanasse, Hangen, Brustlin, Inc.

Special thanks are given to Kristina N. Allen, member of Westborough Housing Partnership, former Westborough Selectwoman and former Public-Sector Co-Chairwoman of the Partnership, for editorial assistance and insight.

This report was published by the 495/MetroWest Partnership in October 2008.

Introduction

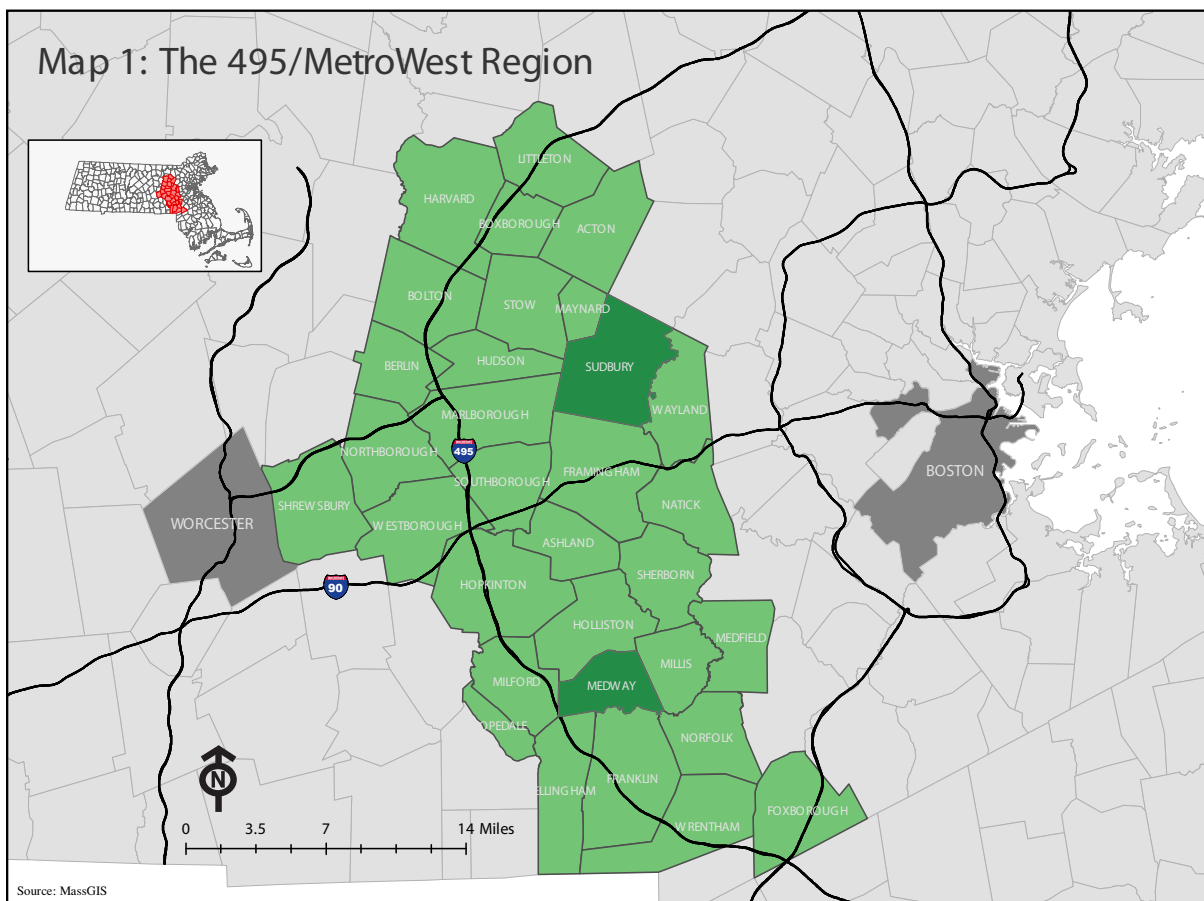
During the last several years there has been a steady drumbeat of concern regarding the affordability of housing in Greater Boston. A variety of organizations including the Commonwealth Housing Task Force, the Pioneer Institute, Harvard's Rappaport Institute for Greater Boston, the Home Builders Association of Massachusetts, the Massachusetts Housing Partnership, and the Massachusetts Association of Realtors have produced reports, forums, and initiatives that well document the issues associated with housing affordability.

Two concerns have been consistently raised in the research on the housing issue. One is that the low-density nature of residential development, particularly in the suburban regions of Greater Boston, is a critical factor affecting housing affordability. The second is that the high cost of housing, despite recent cost decreases in the housing market, is forcing workers out of state. In short, Greater Boston's housing problem has become an economic development problem.

About the Density Project

As an organization concerned with the economic competitiveness of the 495/MetroWest region, the 495/MetroWest Partnership (the Partnership) is interested in examining housing affordability more closely, with specific focus on density and how increasing density can spur the provision of workforce housing.¹ Since the 495/MetroWest region is primarily suburban, the Partnership wanted to pay particular attention to the challenges of increasing density in a suburban landscape (*See Map 1*).

The Partnership commissioned the University of Massachusetts Amherst's Department of Landscape Architecture and Regional Planning to develop the *Density Through Design* project to examine these issues. Working with two municipalities (Sudbury and Medway), the project's main goal was to develop conceptual residential site designs in each municipality aimed to increase density and produce workforce housing. Each site plan was based on design techniques for moderate-density projects that are appropriate in the parcels' suburban setting,



¹ Workforce housing is generally defined as housing that is affordable for individuals/families that earn from 80% to 120% of an MSA's median income.

take into account infrastructure and environmental limitations on the site, and attempt to address the root apprehensions associated with density. Moderate density translated into about seven to ten units per acre; their size and compact design usually dictate a price affordable to workforce families.

Although site plans did not consider the parcels' underlying zoning and the municipality's subdivision regulations, they were not classified as Ch.40B comprehensive permit developments. Through this effort the project identified barriers to developing moderate density workforce housing in a suburban context as well as density limitations not related to regulations. The Partnership density project also examined regulatory and design precedents from around the United States and Massachusetts that address the challenge of developing moderate density workforce housing in suburbs.

Challenges to Developing Workforce Housing in the 495 MetroWest Corridor

Various studies have illustrated the high cost of housing in Greater Boston.² The 495/MetroWest region has not escaped these escalating costs; many municipalities in the region have higher median single-family home prices than the Boston MSA median of \$413,000.³ Both nationally and locally the workforce housing problem is rooted in the divergence of incomes and home prices. Incomes have been fairly stagnant since the mid-1970s, while home prices skyrocketed starting in the late 1990s.⁴ This divergence had been masked in recent years as many relied on the use of chancy, high-risk loan products to surmount high down payment costs.⁵ These high costs have put financial strain on individuals and families in the workforce whose

incomes fall between 80 percent and 120 percent of the Boston MSAs median income of \$80,500.⁶ Despite recent downturns in the housing market, regional home prices are not competitive with other states.

Discussions about workforce housing often center around public employees – teachers, police and fire personnel, and others who are integral to a community but often cannot afford to live in the municipalities they work for. The market for workforce housing, however, is actually much, much broader. It includes young professionals, workers in the construction trades, retail sales people, and service workers, who all play a crucial role in the economic success of a region.

Discussions about workforce housing often center around public employees – teachers, police and fire personnel, and others who are integral to a community but often cannot afford to live in the municipalities they work for. The market for workforce housing, however, is actually much, much broader. It includes young professionals, workers in the construction trades, retail sales people, and service workers, who all play a crucial role in the economic success of a region.

Housing costs, job losses, and migration out of the state are all connected.⁷ There are significant economic and workforce development implications to not supplying affordable workforce housing.⁸ Housing costs are a key determining factor in workers' location and relocation decisions.⁹ As housing affordability declines, it becomes more difficult to recruit and retain employees. In the resulting tight labor market, employers must offer higher salaries, which increases the cost of doing business. As

2 Bluestone, Barry. *Sustaining the Mass Economy: Housing Costs, Population Dynamics, and Employment*, Executive Summary. Boston: Center for Urban and Regional Policy, Northeastern University, May 2006. Retrieved on October 25, 2007 from <http://www.curp.neu.edu/pdfs/Rev1.EXECUTIVE%20SUMMARY.051606.pdf>.

3 MetroWest Economic Research Center. *Economic Engines 2: The Combined MetroWest and Greater Marlborough Economies Revisited*. Framingham, MA: Framingham State College, May 2007.

4 MetroWest Economic Research Center. *Economic Characteristics for the 495/MetroWest Corridor 2008*. Framingham, MA: Framingham State College, March 2008.

5 McIlwain, John. "The Age of Turbulence: Housing in a New World." *Multifamily Trends* 10.6 (2007): 16-19.

6 80% of the Boston MSA median income is \$64,400. 120% of the Boston MSA median income is \$96,600.

7 Sum, Andrew et. al. *Mass Jobs: Meeting the Challenges of a Shifting Economy*. Boston: MassINC. November 2007.

8 For further information on the connection between housing affordability and economic development in the Greater Boston region see Bluestone, Barry. *Sustaining the Mass Economy: Housing Costs, Population Dynamics, and Employment*, Executive Summary. Boston: Center for Urban and Regional Policy, Northeastern University, May 2006. Retrieved on October 25, 2007 from <http://www.curp.neu.edu/pdfs/Rev1.EXECUTIVE%20SUMMARY.051606.pdf>.

9 Suchman, Diane. *Developing Housing for the Workforce A Toolkit*. Washington: Urban Land Institute, 2007.

housing costs have increased across Greater Boston and in the 495/MetroWest region, workers have been forced to search greater distances for affordable housing, which aggravates transportation congestion on roadways. This is a particular problem in the 495/MetroWest region because of the limited public transportation options available.

Despite the fact that some policy makers still view the 495/MetroWest region as a collection of bedroom communities between Boston and Worcester, it is decidedly not. More than 285,000 people work in the region (one of every 11 jobs in the state).

Despite the fact that some policy makers still view the 495/MetroWest region as a collection of bedroom communities between Boston and Worcester, it is decidedly not. More than 285,000 people work in the region (one of every 11 jobs in the state).¹⁰ Outmigration data over the last several years suggests that individuals, particularly the young and well educated, and families are leaving the state. They often cite high housing costs as a key factor.¹¹ As the price of fuel continues to escalate, the affordability of looking at more distant locations for housing will continue to erode. This could speed outmigration to other more affordable regions of the country.

Barriers to Increased Housing Development

Interviews with regional residential development stakeholders, elected officials, and employees of Medway and Sudbury revealed that community opposition to residential development in general is a significant barrier to increasing residential density. Concern and opposition to residential development often involve values rather than technical issues, though the reasons for opposing specific projects are often technical. The amount and character of community opposition tend to vary depending on the specifics of the development and the neighborhood surrounding it. Good architectural design, however, can be critical to the winning over opponents. Typical anti-density arguments can be categorized into six

different areas:

- infrastructure costs,
- school financing costs,
- loss of property value,
- environmental impacts,
- traffic congestion, and
- loss of community character and aesthetic concerns.

It should be noted that those opposed to development projects often raise important, sensible critiques that planners and developers benefit from addressing.¹²

Infrastructure costs

Density opponents claim that higher-density residential developments will fail to generate enough tax revenue to cover necessary infrastructure improvements and result in overburdening municipal services and budgets. Municipalities throughout the Commonwealth are concerned that new residential construction may create demands for public services that outweigh the benefits of increased housing opportunities. New construction raises concerns that the taxes generated by the new housing will not offset the demand for services from the housing's occupants.¹³ The fear that new residential development will overburden public water, wastewater and/or stormwater treatment systems and require infrastructure expansion is common in many water-strapped municipalities in the 495/MetroWest region.

The fear that new residential development will overburden public water, wastewater and/or stormwater treatment systems and require infrastructure expansion is common in many water-strapped municipalities in the 495/MetroWest region.

The Partnership and the Metropolitan Area Planning Council drew attention to this issue through the 495/MetroWest Corridor Water Resources Strategy. The Strategy assessed water resource trends in the region and developed tools that communities can use to

10 MetroWest Economic Research Center. Economic Characteristics for the 495/MetroWest Corridor 2008. Framingham, MA: Framingham State College, March 2008.

11 Bluestone, 2006.

12 McAvoy, Gregory E. "Partisan Probing and Democratic Decision-Making: Rethinking the NIMBY Syndrome." *Policy Studies Journal* 26.2 (1998): 274-293.

13 Nakajima, Eric, Alison Dale, and Kathleen Modzelewski. The Fiscal Impact of Mixed-Income Housing Developments on Massachusetts Municipalities: A Report for Citizens' Housing and Planning Association. Amherst: UMass Donahue Institute, May 2007.

help protect and sustain their water resources. The materials from the Strategy are available online at www.arc-of-innovation.org.

In May 2007 the University of Massachusetts Donahue Institute released the report *The Fiscal Impact of Mixed-Income Housing Developments on Massachusetts Municipalities*. The report examined whether 40B mixed-income developments, which are frequently denser than typical suburban subdivision developments, did, in fact, place new burdens on their communities.¹⁴ Under Chapter 40B comprehensive permit developments, a developer can override local zoning when the host municipality lacks a minimum of 10 percent affordable housing as a percentage of its housing stock. State-approved 40B developments must have a minimum of 25 percent housing reserved for households earning below 80 percent of median income. Typically, nearly three quarters of housing units in a 40B development are sold at market rates. 40B developments are often denser than normal regulations allow, so they are a good model to judge effects of dense non-40B projects. The Donahue Institute study examined seven municipalities with eight 40B developments and found that the immediate fiscal impact of these developments may not be as great as often assumed.¹⁵ The eight developments examined in the study did not have any measurable negative impact on public services in their municipalities.

School Financing Costs

Education accounts for one of the largest annual expenditures at the municipal level. Therefore it is no surprise that the potential for increased school costs for additional children is one of the most frequently raised concerns over denser residential development.¹⁶ Recent surveys have shown that a majority of Massachusetts residents believe that affordable housing will increase public school costs.¹⁷

The nature of residents in higher-density housing – smaller families with fewer children – puts less demand on schools than low-density housing. Higher-density residential developments, be it single family, multi-family, apartment, or a combination of all three, with dwellings of smaller square footage averages are more likely to attract predominantly childless couples, singles, and empty nesters. Research has found that per dwelling capital costs for schools are 18 percent higher for housing units in large-lot development (one dwelling unit per acre) than for houses in compact developments.¹⁹ The Donahue Report, *The Fiscal Impact of Mixed-Income Developments in Massachusetts*, did not find clear evidence of marginal impact on public school costs in the municipalities that were examined. The report found that school costs are rising throughout Massachusetts in cities and towns with both declining and increasing enrollments. In short, enrollment is not the most significant factor driving increases in school costs.²⁰

The nature of residents in higher-density housing – smaller families with fewer children – puts less demand on schools than low-density housing. Higher-density residential developments, be it single family, multi-family, apartment, or a combination of all three, with dwellings of smaller square footage averages are more likely to attract predominantly childless couples, singles, and empty nesters.

Loss of Property Values

It is difficult to isolate individual factors increasing or decreasing residential property values, but there is no solid evidence that denser housing decreases property values.²¹ In fact, some research shows that being located near higher-density development can increase property values. A study by the National Association of Home Builders analyzed data from the American

14 The full report can be retrieved at http://www.massbenchmarks.org/publications/studies/pdf.UMDI_FiscalImpact.pdf.

15 Projects were analyzed in Brookline, Falmouth, Northampton, Peabody, Sandwich, Wellesley, and Wilmington.

16 Obrinsky, Mark, and Debra Stein. *Overcoming Opposition to Multifamily Rental Housing*. Washington: National Multifamily Housing Council. January, 2007; Flint, Anthony. *The Density Dilemma: Appeal and Obstacles for Compact and Transit-Oriented Development*. Cambridge: Lincoln Institute of Land Policy, 2005; and Haughey, Richard. *Higher-Density Development: Myth and Fact*. Washington: Urban Land Institute, 2005.

17 UMass Donahue Institute and Citizens' Housing and Planning Association. *UMass Donahue Institute/CHAPA Housing Poll 2006*. Amherst: UMass Donahue Institute, February, 2007. Nakajima, Eric, Alison Dale, and Kathleen Modzelewski. "Mixed Income Housing and the Municipal Bottom Line." *MassBenchmarks* 9.2 (2007): 9-16.

18 Haughey, Richard. *Higher-Density Development: Myth and Fact*. Washington: Urban Land Institute, 2005.

19 Nakosteen, Robert, and James Palma. *The Fiscal Impact of New Housing Development in Massachusetts: A Critical Analysis*. Amherst: UMass Donahue Institute, 2003.

20 Nakajima, May 2007.

21 Haughey, 2005.

Housing Survey and found that between 1997 and 1999, the value of single-family homes within 300 feet of an apartment or condominium building went up 2.9 percent a year. This was slightly higher than the 2.7 percent rate for single-family homes without multi-family properties nearby.²²

Environmental impacts

Concern over potential environmental impacts is a common argument utilized by opponents of higher-density residential projects. Environmental-based arguments are often very specific, citing such potential issues as: increased energy use; reduced capacity for stormwater infiltration; reduced access to sunlight, impacting active and passive solar collection and concentration; and loss of wildlife habitat. As common is a more general argument based on loss of open space.

In many ways compact denser development, such as open space residential development, has less of an impact on the environment than low-density residential development.

In many ways compact denser development, such as open space residential development, has less of an impact on the environment than low-density residential development. Inefficient land use in large-lot subdivisions increases the use of automobiles and discourages effective public transportation development. Low-density residential development increases impervious surface area, which causes erosion and increased stormwater runoff. If conducted with appropriate master planning, increasing density in areas that can accommodate higher densities, such as town centers, can reduce development pressure on outlying properties identified for open space protection. Low-density development devours the very thing most people move to the suburbs for in the first place – natural open space.²³

Traffic congestion

Concern over increased traffic congestion is another frequent argument used by opponents of higher-density residential projects. Opponents to higher-density residential development assume that these projects generate more traffic than low-density development, creating more local and regional traffic congestion. Vigorous campaigns based solely on the potential for increased traffic are often mounted by opponents to higher-density projects.

In fact, higher-density residential development generates less traffic than low-density development per unit.²⁴ The Institute of Transportation Engineers note that single-family homes generate more traffic than multi-family homes because they tend to own more vehicles per unit and be located farther away from destinations and alternative transportation.²⁵ Bus service generally becomes feasible at a relatively low minimum density of seven units per acre.²⁶ Moderate-density residential development makes public transportation practical and can thereby actually reduce per-unit car trips.

Community Character and Aesthetics

People often oppose denser residential development because they do not want the look and feel of their community “degraded” by incompatible structures.²⁷ Fearing that a higher-density project will lead to a spate of other developments, opponents may be concerned about the “inability of the community to keep out other undesirable land uses once one has been sited.”²⁸

Attractive, well-designed, and well-maintained moderate-density development attracts good residents and tenants and can fit into the design of the surrounding suburban community.²⁹ Much of the resistance to higher-density housing

22 National Association of Homebuilders. Market Outlook: Confronting the Myths About Apartments with Facts. Washington: National Association of Homebuilders, 2001.

23 Haughey, 2005.

24 Ibid.

25 Obrinsky, 2007.

26 Dunphy, Robert, Deborah Myerson, and Michael Pawlukiewicz. Ten Principles for Successful Development Around Transit. Washington: Urban Land Institute, 2003.

27 O’Connell, James. Ahead or Behind the Curve?: Compact Mixed Use Development in Suburban Boston. Cambridge: Lincoln Land Policy Institute, 2003; and Pawlukiewicz, Michael and Deborah Myerson. Urban Land Institute/National Multi Housing Council/American Institute of Architects Joint Forum on Housing Density: Urban Land Institute Land Use Policy Forum Report. Washington: Urban Land Institute, 2002.

28 Schively, Carissa. “Understanding NIMBY and LULU Phenomena: Reassessing Our Knowledge Base and Informing Future Research.” *Journal of Planning Literature* 21:3 (2007): 255-266.

29 Haughey, 2005.

Attractive, well-designed, and well-maintained moderate-density development attracts good residents and tenants and can fit into the design of the surrounding suburban community.

stems from the belief that denser housing is inevitably ugly. In fact, the real issue is the quality of design rather than the density.³⁰

Regulatory Barriers

Municipal regulations – primarily zoning but also subdivision requirements and wetland and septic-system regulations – can significantly limit the density of residential development.

Along with the arguments presented above, municipalities may think that limiting housing construction helps existing owners by keeping property values high. Homeowners have incentives to impede new construction that increases supply and could reduce the value of their homes.³¹ A regulatory framework that limits density creates housing scarcity.³²

Significant research on regulations as a barrier to housing development was conducted as part of the Initiative on Local Housing Regulation, a joint effort of the Pioneer Institute for Public Policy Research and Harvard University’s Rappaport Institute for Greater Boston. For this initiative researchers assembled and coded a database on zoning codes, subdivision requirements, and environmental regulations that as of 2004 governed land use in 187 communities in eastern and central Massachusetts.³³ The Initiative also produced several papers and policy briefs on land-use regulation in greater Boston.

Site Designs

The work by the UMass teams in Sudbury and Medway illustrates the barriers to density that land use regulations can create. As mentioned, site plans in Sudbury and Medway were developed without following the parcel’s existing zoning or municipal subdivision regulations. However, the final site designs were analyzed for compatibility with the existing regulations. Neither design could have been developed under each town’s current regulatory framework. Many zoning barriers identified in the Initiative on Local Housing Regulation applied to both the Sudbury and Medway site designs including:

- Restrictive minimum lot size requirements;
- Subdivision regulations (particularly street width requirements);
- Restrictions on multi-family development; and
- Restrictions on mixed use.³⁵

Also identified in the Pioneer/Rappaport Initiative were restrictions on accessory dwelling units, such as “granny flats.” Though not associated with either parcel site design, restrictive accessory dwelling unit regulations were also identified by UMass as a barrier to developing denser affordable workforce housing – particularly in existing developed areas of each town.

The UMass team developed conceptual residential site designs on parcels in Sudbury and Medway that aimed to provide moderate density workforce housing. Each site plan was based on design techniques that allow higher-density projects appropriate in the parcels’ suburban setting, take into account infrastructure and environmental limitations on the site, and attempt to address the root apprehensions associated with density. Site plans did not take into consideration the parcels’ underlying zoning and the municipality’s subdivision regulations.

30 Pawlukiewicz, 2002.

31 Glaeser, Edward, Jenny Schuetz, and Bryce Ward. Regulation and the Rise of Housing Prices in Greater Boston. Cambridge: Rappaport Institute for Greater Boston, January, 2006.

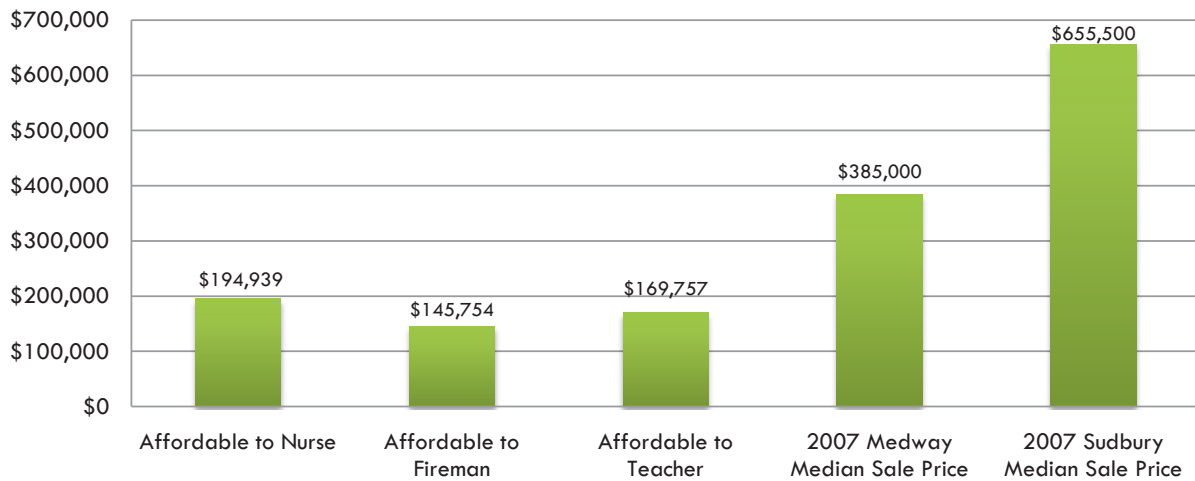
32 For a skillful and concise analysis of the connections between housing affordability, zoning, and density see Elliott, Donald. A Better Way to Zone: Ten Principles to Create More Livable Cities. Washington: Island Press, 2008.

33 The database is available at www.pioneerinstitute.org/municipalregs/. The site also houses summary reports, analyses of the data, and a downloadable version of the database in formats that can be used for analyses.

34 For a full analysis of regulatory barriers to housing development see Dain, Amy. Housing and Land Use Policy in Massachusetts: Reforms for Affordability, Sustainability, and Superior Design. Boston: Pioneer Institute for Public Policy Research, February, 2007.

35 See acknowledgements page for a full list of review committee membership.

Chart 1: Housing Affordability Gap: Medway & Sudbury



Each project worked with municipal officials throughout the development of the site designs. Design work was vetted by a review committee composed of housing stakeholders with expertise in planning, landscape architecture, residential development, real estate financing, and real estate law at different points throughout the project timeline.³⁵

A full assessment was completed on each site that analyzed geology, water resources/hydrology, topography, solar orientation, soils, vegetation, transportation, utilities, and surrounding land use and zoning. For each town a package of regulatory recommendations was developed that could be utilized to implement the site plan concepts. These are described below.

Sudbury

Incorporated in 1639, Sudbury is one of the oldest towns in Massachusetts and New England. Sudbury is located in Middlesex County, bordering Marlborough to the west, Framingham to the south, Wayland to the east and Concord to the north (*See Map 1, pg 2*). It is divided east to west by Rt-20 and Rt-117, and north to south by Rt-27. Sudbury is approximately 20 miles outside of Boston and 26 miles east of Worcester. The total population in Sudbury is 18,207, with a population density of 425 people per square mile. Over 92 percent of Sudbury's housing is owner occupied. Sudbury consists of around 85 percent single-family homes and only 15 percent multi-

family housing. Despite the perception of Sudbury as a bedroom community, there are more than 6,000 jobs located in the community. In 2007 the median single-family home in Sudbury sold for approximately \$655,000 (*See Chart 1*). This cost is out of reach for individuals and families at and below the town's median household income level of \$138,815.

The parcel chosen to develop for a test site design is called the Melone property, a town-owned sand and gravel pit in the northeast corner of the town along Route 117/North Road. Currently under active excavation, the site is scheduled to be inactive and ready for development in spring/summer of 2009.

The entire parcel selected is 55 acres, consisting of five different sections (*See Fig. 1*). Twenty and one half acres is the active sand and gravel pit within Sudbury. Another 16.5 acres in Concord is considered developable land, assuming a land exchange between Sudbury and Concord. A triangular portion of just over seven acres is owned by the Sudbury Water District, which the town wishes to leave for recreation, parking, and on-site stormwater mitigation. One acre of the abutting Wagner property is included in the site design. Approximately ten acres is land protected by the Conservation Commission where building is restricted.

The site concept designed by the UMass team utilizes the arrangement of the architecture, natural features, and topography to connect large open spaces and smaller community spaces (*See Fig. 2*). This design



Figure #1: The Sudbury study parcel.

accommodates 150 units total or 7.5 units per acre with the town-requested two parking spaces per unit, while preserving over half of the buildable land for open space. Stormwater is managed on-site through the use of swales and bio-retention basins.

The design forms small community clusters along a single 22' wide spine of loop road. Town house clusters and their community spaces are linked around a large multifaceted open space (See Fig. 3). This central area, surrounding a terraced pond, serves as an amenity as well as the main bio-retention feature. In the eastern section of the development is an open



Figure #2: The Sudbury site concept.

field that will help meet the Town's recreational needs, a feature that Sudbury officials were interested in accommodating on the site. The field fits two regulation football fields. Within the overall design, the housing clusters relate to the central open space as well as to the surrounding conservation lands. The design maximizes the use of the original slope by setting homes into the hillside. A trail along the northern rim of the property connects to existing trailheads, tying the site to the Sudbury community.

The individual townhouse design focuses on the interconnection of house and garden similar to the townhouse clusters ringing the central common space (See Fig.4, next page). The open floor plan of the homes, which ranges in size from roughly 900-1500 square feet, blends with a large private garden space of 375 square feet to make small square footage feel larger. The gardens offer privacy through the use of screens and hedges, as well as through overhead vines and trellises. Parking is provided in cluster lots with short walks to the homes. The small open space formed by the townhouse cluster then relates to the larger central open space, as well as to the surrounding conservation lands.



Figure #3: Town house cluster and their community spaces are linked around a large multifaceted open space.

Medway

The Town of Medway is located approximately 22 miles southwest of Boston between I-495 and MA-128 in the MetroWest region (See Map 1). It is bordered by Milford to the west, Holliston to the

north; Millis to the east; and Norfolk, Franklin, and Bellingham to the south. The total population of Medway grew 25 percent between 1990 and 2000 to 12,448. Eighty-three percent of the town's housing stock is single family. Medway has one of the smallest employment bases in the 495/MetroWest region with about 2,600 people working in the town. The median price of a single family home in Medway in 2007 was \$385,000 (See Chart 1, pg 7). This cost is out of reach for individuals and families immediately above, at, and below the town's median household income level of \$85,957.

The parcel chosen to develop as a test site design in Medway is locally known as the Oak Grove Bottle Cap Site. The 100-acre site is located at the Medway/Milford town line just east of Interstate 495 (See Fig. 5). It is bordered by Route 109 to the north, West Street to the east, and Alder Street to the south. Trotter Drive runs north-south through the site. Many of the parcels on the site are very small; in fact 242 parcels are less than 1,000 square feet. The Clicquot Club, a soda company founded in nearby Millis in 1881, gave away these individual tracts to consumers with a winning soda bottle cap during a beverage contest in the 1920s. The "Bottle Cap Lots" can be found on either side of Trotter Drive, mainly aligning with Route 109 to the north and West Street to the east. Many of these small lots continue to be under individual ownership. Of the 100 acres



Figure #5: The Medway study parcel.

comprising the site, about 50 acres are developable after accounting for wetlands (24 acres), roads and existing homes, and an existing commercial use (5.4 acres), part of the town's industrial park directly west and south of the site.

Medway officials were interested in looking at mixed-use options on the site that could assist in the growth and diversification of the town's tax base. Of particular importance was developing a site plan that would mesh with the existing commercial uses

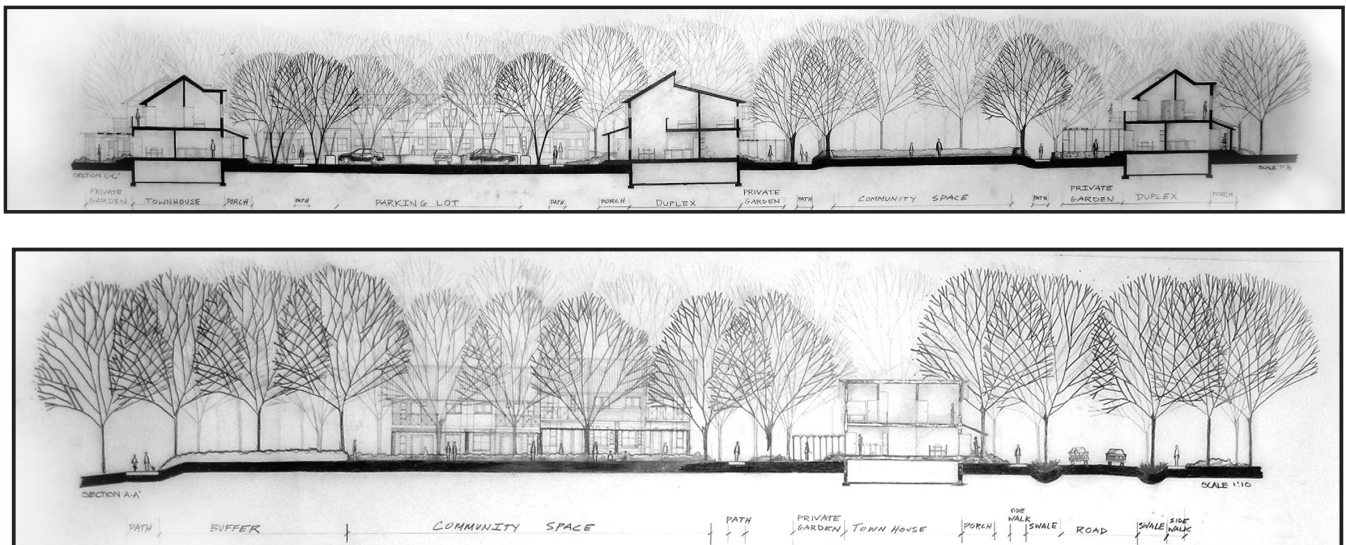


Figure #4: Typical neighborhood clusters within the Sudbury site concept.

in the industrial park, offer services to an expanding employment base as the park grows, and provide a transition between the industrial park and the surrounding residential areas. The site concept designed by the UMass team locates mixed-use development with first-floor retail/commercial and upper-floor apartments and condos in the northwest section closest to the industrial park. Moving east across the site, this density lessens to 10 units per acre for townhouses and finally for multifamily houses integrated with existing single-family detached houses along West and Alder streets (*See Fig. 6*). The plan consists of 180 units averaging 10 units per acre, organized into 11 clusters. Four of these clusters relate to a large central open space, and seven relate to a green belt. Each housing cluster surrounds a small community open space (*See Fig. 7*).



Figure #6: The Medway site concept.



Figure #7: Each housing cluster surrounds a small community space.

Conclusions

- **Moderate-density housing, given its smaller average square footage, is more affordably priced for the workforce. With an attractive, innovative design, it can fit well into the suburban landscape.**
- **Housing is an economic development issue.** Despite the recent downturn in the housing market, home prices in the region are still not competitive with other regions throughout the country. The lack of entry-level and workforce housing is impacting the current profitability of firms in the 495/MetroWest region and their ability to expand. As housing affordability declines, it becomes more difficult to recruit and retain employees. In the resulting tight labor market, employers must offer higher salaries, which increases the cost of doing business. All of which places MetroWest and Greater Boston at a competitive disadvantage compared to regions with more affordable housing options.
- **Although a wide variety of reasons was cited why neighbors and municipalities may be concerned with moderate-density housing, most of those reasons are not supported by the best research done to date in the region, state, and nation.**
- **Current municipal regulations, including subdivision regulations that can contain exceedingly high parking and street-width minimums, severely limit the spectrum of residential densities that can be developed on much of the land in the 495/MetroWest region.**
- **Density is limited by factors beyond regulations.** Infrastructure limitations—such as sewer, water, and transportation—are a significant barrier to developing denser housing in the region. It is far easier to change regulations to allow greater density than to build the necessary infrastructure to accommodate it. On both sites, but particularly Sudbury, the lack of public sewer was a limiting factor on density. The density levels proposed in Medway would only be possible with the proposed expansion of the town’s sewer service into the area. Many municipalities struggle with managing stormwater and the limitations associated with the region’s future water supply. Beyond water issues, the region’s transportation network, particularly minor arterials and collector streets, and the relative lack of public transportation options create limitations.
- **Demographic changes will create the need for smaller and more affordable housing options.** These changes include the aging in place of baby boomers, the postponing of starting families, the overall reduction of family size, and the changing structure of the family.
- **Appropriate design can address many of the concerns that neighbors have about moderate density development.** Good design provides a high quality of life for new residents without sacrificing the quality of life that existing residents expect.
- **Achieving moderate-density designs requires that municipalities review their own regulations to assure that, in the right places and with the right review, denser residential development is included in each community.**

Potential Municipal Responses

- **Review existing zoning and determine appropriate locations, preferably near town centers and/or areas of existing infrastructure that can accommodate high-quality moderate density housing.** This housing will accommodate not just the workers the I495 firms need, but also the children of existing residents who desire “starter” homes.

- **Promote the potential of mixed-use development has to balance the tax base in towns that have a high proportion of residential uses.** Mixed-use developments are consistent with Commonwealth’s Smart Growth and sustainability goals. With built-in flexibility for different uses, these developments will be more successful in the face of market fluctuations. Mixed use should be allowed by right where appropriate because a special permit process can be a disincentive. Considering the fiscal strain that many municipalities are facing, additional revenue from commercial development should be a welcome addition to a town’s tax roll.
- **Use overlay zones as a flexible zoning tool that can promote denser housing.** An overlay zone or district encompasses one or more underlying zones and imposes additional requirements above those required by the underlying zone. Overlay zones are commonly used by municipalities within the 495/MetroWest region and throughout the Commonwealth for a variety of reasons, from preserving historic character to promoting mixed use. Both Medway and Sudbury teams’ regulatory recommendations included overlay zones as options to promote denser housing.
- **Make manufactured housing an option.** NIMBY resistance and regulatory restrictions can prevent the development of manufactured housing. Due to technological innovations, design of manufactured homes has become increasingly flexible. As a result, the manufactured home industry is able to build varying types of single-family homes that meet the needs of a wide range of potential buyers. Thanks to both innovations in design and in construction, it is increasingly difficult to tell the difference between traditional frame-built housing and manufactured housing. Factory building maximizes efficiencies and takes advantage of economies of scale to produce a comparable product to traditional frame built housing at significantly less cost. The affordability of constructing manufactured housing allows the developer to turn a profit while providing an affordable housing option for potential homebuyers. Municipalities should recognize the potential of manufactured housing and implement new provisions and policies where necessary that support its development.
- **Promote workforce housing through inclusionary housing policies/programs targeting moderate income earners.**³⁶ Inclusionary housing policies/programs rely on developers to build workforce housing concurrently with market-rate residential developments. The most common type of inclusionary housing program is inclusionary zoning, which encourages or mandates the inclusion of a set proportion of affordable units in each market-rate housing development that meets certain size criteria. Most inclusionary housing programs focus on developing housing for households earning no more than 60 percent to 80 percent of AMI. However, some jurisdictions are beginning to implement programs that target housing construction for households earning 80 percent to 120 percent of AMI. Both the City of Boston and the City of Somerville have developed inclusionary housing programs that target above 80 percent AMI earners. Local inclusionary zoning policies can take many forms and can be mandatory or voluntary. Both generally provide incentives such as density bonuses, fast-track permitting, or reduction in development standards or parking requirements. There is great opportunity for municipalities to draft inclusionary zoning that promotes the development of workforce housing dispersed throughout a community and developed by the private sector.
- **Promote accessory dwelling units as a by-right option to increase denser housing.** One of several regulatory tools researched by the design project as a means to increase residential density was reducing barriers to accessory dwelling units (ADU). ADUs can be integrated into existing single-family neighborhoods to provide a typically lower-priced housing alternative with little or no negative impact on the character of the neighborhood. Because the units are usually small, they are more affordable than full-size rentals. Many municipalities allow ADUs but require special permits before approval and often restrict occupancy of the units to relatives of the homeowners. By reducing the restrictions on ADUs and making them a by-right option, municipalities would be able to provide more rental units, many affordable—with no subsidies from the state; no construction of new roads, sewer or other infrastructure; and no building on greenfields.³⁷

³⁶ See Suchman, 2007 for a detailed analysis of workforce inclusionary housing policies and programs.

³⁷ See Dain, 2007 for a comprehensive review of the challenges related to ADU development.

Potential State Responses

■ **Review 40R, which has potential in suburban contexts but also limitations.** Chapter 40R, the Commonwealth's newest regulatory attempt to promote housing development, was implemented in 2005.³⁸ 40R encourages municipalities to establish new overlay zoning districts, Smart Growth Zoning Districts (SGZD), to promote housing production and, more generally, smart growth development. Chapter 40R, and the accompanying legislation 40S, provide financial incentives to communities to adopt these new zoning districts. Eligible locations for SGZDs include areas within one-half mile of a transit station or within an area of concentrated development (such as a town center) with substantially developed or underutilized land that is currently served or will be served by public sewer or private sewage treatment plants. It also includes a Highly Suitable Location (HSL), which has been identified as appropriate for high-density housing or mixed-use development within local planning documents. The project found that 40R has potential in suburban contexts but is limited by certain factors. The language in the eligible location criteria makes it clear that 40R is more suited for urban areas or inner-ring suburbs that have seen considerable development, are substantially built out, and are well served by public transit. The HSL criteria do offer an opportunity for suburbs to take advantage of 40R, and the Medway and Sudbury projects would most likely meet the HSL criteria. The Medway and Sudbury conceptual site designs each utilized townhouses as the main type of housing. The Medway site (10 DU per acre) met the minimum density criteria for single-family housing, which is 8 dwelling units per acre. The Sudbury site (7.5 DU per acre) was just below the minimum density requirement. In certain instances the inflexibility of the density requirements outlined in the regulations could prevent worthy projects from taking advantage of this program. For workforce housing, it is possible that the requirement that 20 percent of the housing in a SGZD must be affordable to households making up to 80 percent of AMI would force developers to increase the cost of market-rate units outside of the price range for households making 80 percent to 120 percent AMI. Finally, for municipalities with limited local capacity for planning, the process of designating a 40R district might be a barrier. If the state could streamline the process, perhaps more municipalities would consider it as an option.

Recommendations

■ **The Commonwealth should comprehensively reassess how it approaches suburban housing policy.** Urban housing policies are hard to fit into suburban landscapes. A good example of this is the Commonwealth's focus on transit-oriented development, which is a good thing for housing policy in distinctly urban areas. The problem is that the 495/MetroWest region is not distinctly urban in nature. In suburban regions like 495/MetroWest, where there is decidedly little opportunity for transit-oriented development (TOD), it makes sense to look at different ways to approach housing policy. There is no question that promoting infill development, TOD, and the general revitalization of urban and inner-ring suburban areas through housing development is a good idea. What must be recognized is that the needed housing to accommodate the projected population growth for Greater Boston will not be sufficiently captured by infill development alone. There are tools within the Massachusetts' Smart Growth Toolkit much more suited to the suburban context. Open space residential design (OSRD) offers enormous potential for suburban jurisdictions to promote denser housing alternatives while establishing and protecting open space integrated with surrounding development. If the Commonwealth truly wants to address the sprawl of suburban development, it should develop incentives for municipalities and developers to utilize OSRD techniques and practices that match up with existing open space plans. This approach to greater density would provide connected open space/habitat corridors while giving people the homes they need.

■ **The Commonwealth must help interested municipalities create the basic infrastructure framework to accommodate denser housing options.** Municipalities throughout the Commonwealth are concerned that new residential construction may create demand for public services that outweigh the benefits of increased housing opportunities. New construction raises concerns that the taxes generated by new housing will not offset the demand for services from the housing's occupants. On a per-unit basis moderate density housing saves money to develop;

³⁸ As of June 2008 twenty-one municipalities in Massachusetts have approved 40R districts. Natick is the only municipality in the 495/MetroWest region with an approved district. For a complete list of approved, pending, and proposed 40R districts go to <http://www.mass.gov/Ehed/docs/dhcd/cd/ch40r/40rdistricts.pdf>.

however, by permitting more units, the municipality incurs increased infrastructure costs. These are legitimate concerns that opponents to dense housing proposals often exploit to block projects or have their density significantly reduced. Through the Community Development Action Grant (CDAG) program, administered by the Executive Office of Housing and Economic Development, the Commonwealth currently provides infrastructure development assistance for housing projects. The program is geared towards urban municipalities and is too underfunded to be of any significant value to suburban municipalities grappling with infrastructure development challenges. The Commonwealth should consider creating a program similar to the Public Works Economic Development (PWED) program, which assists municipalities in funding transportation infrastructure that stimulates and supports economic development projects. The Patrick administration joined housing and economic development under one secretariat because of a recognition that housing is an economic development issue. Therefore, it makes sense that the Administration would develop a program similar to PWED that could provide infrastructure financing for housing projects that meet certain criteria. This could calm concerns of municipal leaders about infrastructure costs and stymie local opposition from utilizing infrastructure cost concerns as ammunition to halt housing projects.

■ **The Commonwealth should enact zoning reforms.** The state laws setting the framework for local zoning create unclear and restrictive provisions that effectively deprive municipalities of authority consistent with their responsibilities and of the tools to carry these responsibilities out. These impediments render local planning ineffective and at times discourage it. The current planning, zoning, and subdivision control statutes can subvert local planning by laying down a minefield of exemptions, prohibitions and zoning freezes in the way of plan implementation. The realization of land use plans is so hindered by the state's disabling statutory framework that no one is served well, including developers. The Patrick Administration, through Housing and Economic Development Secretary Greg Bialecki, should be commended for taking a leadership role in crafting a zoning reform package that addresses the significant limitations of the current framework. This includes putting in place consistency requirements between a municipality's master plan and zoning. Several recommendations in this document, including inclusionary zoning and broader and more flexible authorization for OSRD, are referenced specifically in the group's working paper A Possible Framework for A Land Use Partnership Act.

■ **The Commonwealth should provide targeted planning assistance related to housing.** The ability of municipalities to plan for and manage housing development within their boundaries varies widely. One way for the Commonwealth to address technical planning capacity disparities would be to fund targeted housing planning assistance in the form of a housing planner circuit rider program. Circuit riders would assist municipalities by building local capacity to prepare housing strategies, identify housing opportunities, and organize and secure resources to undertake housing projects. This recommendation echoes a similar recommendation put forward by MAPC's MetroFuture regional plan document.

■ **Finally, the Commonwealth should sponsor multiple demonstration projects with innovative design techniques that increase density, particularly moderate-density residences targeted toward the workforce.**

Through its Density Through Design Project, the 495/MetroWest Partnership was able to present conceptual site plan designs for moderate-density housing that is appropriate for the suburbs, considers infrastructure and environmental limitations, and acknowledges the concerns of the community. The Partnership hopes that these site plans and recommendations can serve communities in the 495/MetroWest region as models to encourage economic development through the production of affordable workforce housing.

Works Cited

- Bluestone, Barry. *Sustaining the Mass Economy: Housing Costs, Population Dynamics, and Employment, Executive Summary*. Boston: Center for Urban and Regional Policy, Northeastern University, May 2006. Retrieved on October 25, 2007 from [http://www.curp.neu.edu/pdfs/Rev1.EXECUTIVE percent20SUMMARY.051606.pdf](http://www.curp.neu.edu/pdfs/Rev1.EXECUTIVE%20SUMMARY.051606.pdf).
- Dain, Amy. *Housing and Land Use Policy in Massachusetts: Reforms for Affordability, Sustainability, and Superior Design*. Boston: Pioneer Institute for Public Policy Research, February, 2007.
- Dunphy, Robert, Deborah Myerson, and Michael Pawlukiewicz. *Ten Principles for Successful Development Around Transit*. Washington: Urban Land Institute, 2003.
- Elliott, Donald. *A Better Way to Zone: Ten Principles to Create More Livable Cities*. Washington: Island Press, 2008.
- Flint, Anthony. *The Density Dilemma: Appeal and Obstacles for Compact and Transit-Oriented Development*. Cambridge: Lincoln Institute of Land Policy, 2005.
- Glaeser, Edward, Jenny Schuetz, and Bryce Ward. *Regulation and the Rise of Housing Prices in Greater Boston*. Cambridge: Rappaport Institute for Greater Boston, January, 2006.
- Haughey, Richard. *Higher-Density Development: Myth and Fact*. Washington: Urban Land Institute, 2005.
- McAvoy, Gregory E. "Partisan Probing and Democratic Decision-Making: Rethinking the NIMBY Syndrome." *Policy Studies Journal* 26.2 (1998): 274-293.
- McIlwain, John. "The Age of Turbulence: Housing in a New World." *Multifamily Trends* 10.6 (2007): 16-19.
- MetroWest Economic Research Center. *Economic Characteristics for the 495/MetroWest Corridor 2008*. Framingham, MA: Framingham State College, March 2008.
- MetroWest Economic Research Center. *Economic Engines 2: The Combined MetroWest and Greater Marlborough Economies Revisited*. Framingham, MA: Framingham State College, May 2007.
- Nakajima, Eric, Alison Dale, and Kathleen Modzelewski. *The Fiscal Impact of Mixed-Income Housing Developments on Massachusetts Municipalities: A Report for Citizens' Housing and Planning Association*. Amherst: UMass Donahue Institute, May 2007.
- Nakajima, Eric, Alison Dale, and Kathleen Modzelewski. "Mixed Income Housing and the Municipal Bottom Line." *MassBenchmarks* 9.2 (2007): 9-16.
- Nakosteen, Robert, and James Palma. *The Fiscal Impact of New Housing Development in Massachusetts: A Critical Analysis*. Amherst: UMass Donahue Institute, 2003.
- National Association of Homebuilders. *Market Outlook: Confronting the Myths About Apartments with Facts*. Washington: National Association of Homebuilders, 2001.

Works Cited

O'Connell, James. *Ahead or Behind the Curve?: Compact Mixed Use Development in Suburban Boston*. Cambridge: Lincoln Land Policy Institute, 2003.

Obrinsky, Mark, and Debra Stein. "Overcoming Opposition to Multifamily Rental Housing." Washington: National Multifamily Housing Council. January, 2007.

Pawlukiewicz, Michael and Deborah Myerson. *Urban Land Institute/National Multi Housing Council/American Institute of Architects Joint Forum on Housing Density: Urban Land Institute Land Use Policy Forum Report*. Washington: Urban Land Institute, 2002.

Schively, Carissa. "Understanding NIMBY and LULU Phenomena: Reassessing Our Knowledge Base and Informing Future Research." *Journal of Planning Literature* 21:3 (2007): 255-266.

Suchman, Diane. *Developing Housing for the Workforce: A Toolkit*. Washington: Urban Land Institute, 2007.

Sum, Andrew et. al. *Mass Jobs: Meeting the Challenges of a Shifting Economy*. Boston: MassINC. November 2007.

UMass Donahue Institute and Citizens' Housing and Planning Association. *UMass Donahue Institute/CHAPA Housing Poll 2006*. Amherst: UMass Donahue Institute, February, 2007.

