



APPLICATION OF SELECTED NEW URBANIST PRINCIPLES
TO RESIDENTIAL INFILL DEVELOPMENTS
IN MATURE SUBURBS OF GREATER BOSTON

by

Andrew Port

B.S.L.A., Landscape Architecture
University of Massachusetts, Amherst, 1999

**Submitted to the Department of Urban Studies & Planning
In Partial Fulfillment of the Requirements for the Degree of
Master in City Planning**

at the

Massachusetts Institute of Technology

June 2004

©2004 Andrew R. Port. All rights reserved.

The author hereby grants to MIT permission to reproduce and to distribute publicly paper and electronic copies of this thesis document in whole or in part.

Signature of Author

Department of Urban Studies & Planning
May, 2004

Certified by

Terry Szold
Adjunct Associate Professor of Land Use Planning
Thesis Advisor

Accepted by

Dennis Frenchman
Professor of the Practice of Urban Design
Chair, Master in City Planning Program



APPLICATION OF SELECTED NEW URBANIST PRINCIPLES TO RESIDENTIAL INFILL DEVELOPMENTS IN MATURE SUBURBS OF GREATER BOSTON

by

Andrew Port

**Submitted to the Department of Urban Studies & Planning
In Partial Fulfillment of the Requirements for the Degree of
Master in City Planning**

Abstract

The New Urbanist movement has grown considerably in the past decade in response to the impacts of sprawl in the United States. The crisis of sprawl has been caused in large part by poorly crafted land use regulations, many of which mandate sprawl. While an abundance of contemporary land use and planning literature focuses on the concepts of New Urbanism, little attention has been given to their regulatory implementation. And while developers and architects have responded to the problems of sprawl with plans for the development of new communities, few have looked at the opportunity to retrofit existing suburbs. This research adds to the field by illustrating how selected New Urbanist principles can be viably applied to residential infill developments in mature suburbs (specifically Greater Boston) if alternative regulations are adopted. Such development will not only preserve natural resources at the urban edge, but will ensure the efficiency and vitality of our mature core communities.

Four developments in communities' representative of the Greater Boston region illustrate the contemporary (conventional) form of residential infill and two are given a post-mortem design alternative (New Urbanist). These alternative developments illustrate the viability of applying New Urbanist principles to residential infill in mature suburbs of Greater Boston. A model hamlet development regulation, used as a guide in developing the alternative designs, illustrates that:

1. The application of New Urbanist principles to residential infill is a viable alternative to conventional sprawl development at the fringe of our mature communities; and
2. No drastic paradigm shift is necessary to implement the principles of New Urbanism in infill residential development. Even *small* changes to local land use regulations can afford significant improvements to the sustainability of our local land use regulations.

The framework and results of this research are transferable to cities and towns across the Commonwealth and our nation. It is my hope that the principles and recommendations herein will be applied accordingly.

Thesis Supervisor: Terry Szold

Title: Adjunct Associate Professor of Land Use Planning

Thesis Reader: Eran Ben-Joseph

Title: Hayes Career Development Assistant Professor of Landscape Architecture and Planning



BIOGRAPHICAL NOTE

Andrew R. Port

Andrew Port is a candidate for a Master of City Planning degree in the Department of Urban Studies and Planning at the Massachusetts Institute of Technology. His academic focus combines community planning, land use regulation, and urban design. His primary interests lie in master-planning, specific plans, land use regulation, community outreach & community building, and GIS.

Andrew was born and raised in Newton, Massachusetts and has lived in Massachusetts for the past twenty-seven years. He attended the Department of Landscape Architecture and Regional Planning (LARP) at the University of Massachusetts, Amherst from 1995 to 1999 and graduated with a Bachelor of Science in Landscape Architecture (BSLA) Degree in 1999.

At that time, Andrew took a job working as City Planner for the City of Peabody, Massachusetts. Since that time he has worked as a municipal planner, addressing a broad range of issues facing communities across the Commonwealth. He is currently coordinating a Comprehensive Rezoning Project for the City of Peabody, including revisions to the Zoning Ordinances, Site Plan Review and Subdivision Regulations, as well as a new provision for Architectural Design Review.

Andrew is a member of the American Planning Association (APA) and is applying for membership to the American Institute of Certified Planners (AICP) this May.



DEDICATION

This work, a small contribution of my life's work as a planner, is dedicated to the memory of my father Solomon W. Sidman whose strength has walked with me through grad school, and lives on through my efforts. "If a man does good because of you, his deeds will be as though they were your own."

ACKNOWLEDGMENTS

First and foremost I would like to thank my thesis advisor Terry Szold for inspiration and encouragement during my graduate studies at MIT. Terry helped me to streamline and refine my work while retaining all of the enthusiasm, and passion I demand of myself. I am also grateful to Eran Ben-Joseph for his feedback and advice in the development of this thesis.

I wish to thank my mother Carol, my sister Laura, and my new niece Rebecca for being patient and forgiving of me during the past two years of preoccupation with my Masters. Never forget the pride of serving as a retainer for past generations and a pillar for those to come.

My thanks to all of the wonderful people in the City of Peabody, where I have practiced as a municipal planner for the past five years. I have learned ten times more through my professional work and your common sense than I could possibly have gained in two years of academia. I am particularly thankful for my early fostering by former Community Development and Planning Director Judith Otto. Your words of wisdom and praise are very much appreciated.

Thank you Anna for taking the time to read and proofread this anvil of text ... twice. Thank you Ali Corwin for dragging me all over the state on study breaks throughout this time, for listening to my inner battles, and for helping to lift me forward and reach my personal goals. Thanks to my housemates Anna and Ashish for reassuring me in times of stress and to good friends Neal, Vera, Joe, Allison, and yes even Anna ... for their camaraderie. ☺

Special thanks to all my professors at MIT and UMass Amherst who trained me in the broad range of skills necessary for municipal planning. You have illuminated the meaning of quality land use planning, urban design, community development, social justice, and capacity building (among others). Lastly, I am grateful to my classmates from DUSP for broadening my understanding of the profession and your willingness to share personal struggles and teamwork. Together we will lift the world forward.

SPECIAL THANKS

Appreciation is given to the planning and other town staff from each of the communities discussed in this research for giving their time, information, and insights:

- Christopher Reilly, Town Planner, Town of Reading
- Diane Beecham, Town Planner, Town of Westwood
- Alicia Alteiri, Town Planner, Town of Boxborough
- Laura Harbottle, Town Planner, Town of Scituate



TABLE OF CONTENTS

	Title Page	1
	Abstract	2
	Biographical Note	3
	Dedication & Acknowledgements	4
	Table of Contents	5-6
Chapter 1	Executive Summary	7
Chapter 2	Introduction	8-20
Chapter 3	Background on New Urbanism	21-30
Chapter 4	Background on Land Use Planning in Massachusetts	31-35
Chapter 5	Community Selection Process	36-46
Chapter 6	Conventional Residential Developments	47-50
	A. Boxborough – Green Acres Subdivision	
	B. Reading – Carriage Estates & Cory Lane	
	C. Scituate – Cornerstone Estates	
	D. Westwood – Conifer Lane	
Chapter 7	Post-Mortem/New Urbanist Alternatives	51-55
	A. Boxborough – Green Acres Subdivision	
	• The Conventional Subdivision Development	
	• The Alternative Development	
	• Comparison: Key Findings & Obstacles to the New Urbanism	
	B. Reading – Carriage Estates & Cory Lane	
	• The Conventional Subdivision Development	
	• The Alternative Development	
	• Comparison: Key Findings & Obstacles to the New Urbanism	



TABLE OF CONTENTS, CONT.

Chapter 8	Obstacles to Implementing New Urbanism	56-63
Chapter 9	Conclusion: Findings & Recommendations	64-68
Appendices	Appendix A: Charter of New Urbanism	69-72
	Appendix B: Model Hamlet Development Bylaw	73-90
	Appendix C: Works Cited	91-95



CHAPTER 1: EXECUTIVE SUMMARY

“Development patterns should not blur or eradicate the edges of the metropolis. Infill development within existing urban areas conserves environmental resources, economic investment, and social fabric, while reclaiming marginal and abandoned areas. Metropolitan regions should develop strategies to encourage such infill development over peripheral expansion.”

~Charter of the New Urbanism

This thesis is a proposition for changes to local land use regulations in the Commonwealth of Massachusetts. The New Urbanist movement has grown considerably in the past decade in response to the impacts of sprawl in the United States. The crisis of sprawl has been caused in large part by poorly crafted land use regulations, many of which mandate sprawl. While an abundance of contemporary land use and planning literature focuses on the concepts of New Urbanism, little attention has been given to their regulatory implementation. And while developers and architects have responded to the problems of sprawl with plans for the development of new communities, few have looked at the opportunity to retrofit existing suburbs. This research adds to the field by illustrating how selected New Urbanist principles can be viably applied to residential infill developments in mature suburbs (specifically Greater Boston) if alternative regulations are adopted. The intent is to provide a much needed link between theory and practice. Such development will not only preserve natural resources at the urban edge, but will ensure the efficiency and vitality of our mature core communities.

Four developments in communities’ representative of the Greater Boston region illustrate the contemporary (conventional) form of residential infill and two are given a post-mortem design alternative (New Urbanist). These alternative developments illustrate the viability of applying New Urbanist principles to residential infill in mature suburbs of Greater Boston. A model hamlet development regulation, used as a guide in developing the alternative designs, illustrates that:

1. The application of New Urbanist principles to residential infill is a viable alternative to conventional sprawl development at the fringe of our mature communities; and
2. No drastic paradigm shift is necessary to implement the principles of New Urbanism in infill residential development. Even *small* changes to local land use regulations can afford significant improvements to the sustainability of our local land use regulations.

The framework and results of this research are transferable to cities and towns across the Commonwealth and our nation. It is my hope that the principles and recommendations herein will be applied accordingly.



CHAPTER 2: INTRODUCTION

Purpose of Thesis

New Urbanism has been hailed as the most significant movement in urban planning and architecture in this century. (Song, 1) “In brief, the principles of New Urbanism include high density, mixed-use neighborhoods; convenient public transit, bicycle paths and pedestrian-friendly street networks; strategically placed open spaces; and architecture designed to foster **social interaction**” (emphasis added).¹ Critics argue that the design of isolated New Urbanist communities on greenfield² sites fails to address the complex issue of splicing New Urbanism into existing communities. As a municipal planner in Massachusetts for five years now I have seen the consequences of crude and narrowly constructed land use regulations, many of which encourage or mandate sprawl. With a background in Landscape Architecture, it is clear to me that the majority of land use regulations across our Commonwealth fail to address the art of urban design, place-making, and **the making of community**. The purpose of this thesis is to assess the viability of incorporating key New Urbanist³ design principles into residential infill⁴ developments in mature suburbs⁵ of Greater Boston.⁶

Curbing Sprawl

The wasteful form of today’s sprawling (outward) urban growth continues to cost our Commonwealth a loss of natural resources, lack of civic proximity, and attendant increase in infrastructure and transportation costs. NIMBY⁷ opposition to compact residential development remains in part because of our failure as planners to engage and educate the general public, and to provide viable examples of such New Urbanist developments, which may (in turn) allow the public an educated comparison.

¹ New Urbanism (NU), Creating livable neighborhoods, Available on the web at <http://www.newurbanism.org>, 2002.

² Greenfield Development: Development of previously undeveloped lands such as fields or forests in communities currently below 50% “Buildout” (of total developed land area) according to a recent Buildout analysis conducted by the State of Massachusetts.

³ New Urbanist Development: Development adhering to established key principles of New Urbanism (For the purposes of this research, compact development with sufficient provision for preserved greenways and common spaces).

⁴ Infill: The use of vacant land and property within a built-up area for further construction or development rather than on new undeveloped land outside the city or town. Residential Infill: Development of residential neighborhoods in mature suburbs and distinct from greenfield development outside the urban core established by these communities.

⁵ Mature Suburbs: Largely developed communities with high build-out ratios (communities currently above 50% “Buildout” (of total developed land area) according to a recent Buildout Analysis conducted by the State of Massachusetts., Executive Office of Environmental Affairs (EOEA).

⁶ Greater Boston: Municipalities in the Metropolitan Area Planning Council (MAPC) region.

⁷ “Not In My Back Yard” (NIMBY), a term used by planners to express community and resident opposition to development and population growth, regardless of form and character.



The negative results of our recent development patterns are both irresponsible and unnecessary. If we assume that the call of “New Urbanists” is a noble one (i.e. the creation of more compact and livable communities), then the important question of implementation remains. Can the New Urbanism be viably introduced into local land use regulations in Massachusetts? What would it mean to insert New Urbanism into mature cities and towns? The benefits of infill over outward sprawl include the preservation of open space and the creation of “places worth caring about.”⁸

The Common in Commonwealth

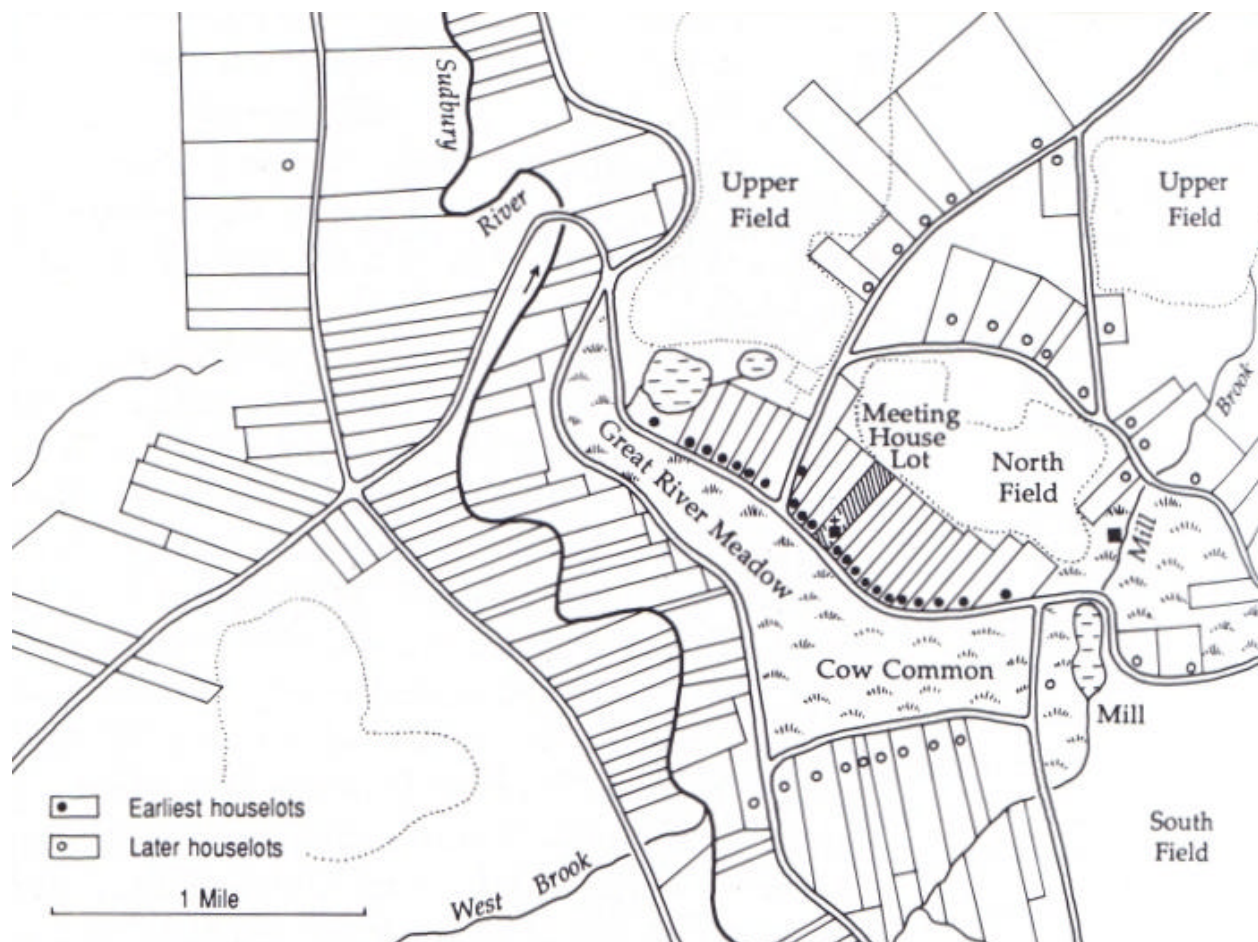


Figure 2.1. A plan of land parcels in the Town of Sudbury Massachusetts in 1640. “Early settlers were granted individual landholdings arranged in relation to common pasture land and a central meeting house.” (Conzen, 212) The compact village form is oriented toward the common open space, and the surrounding landscape is preserved in its natural form and for agricultural uses.

The image above depicts the traditional New England form of settlement; a compact cluster of dwellings and other uses oriented around a common area in the center. As this figure shows, it is

⁸ A poignant phrase used by James Howard Kunstler in the pivotal book, “The Geography of Nowhere.”



the compact urban form, sharp contrast between developed and undeveloped areas, and shared common spaces that defines traditional New England development patterns. This neo-traditional form of development illustrates several key principles of New Urbanism. This form of residential development ensures:

1. Compact and Efficient Urban Form (both in individual lot size and clustering of the whole)
2. Emphasis on and Definition of Common Space (the public realm)

“In the early 1900’s, much of the residential housing was concentrated around traditional town and village commons within walking distance of commercial and retail activity as well as churches and other cultural institutions. This scale of living allowed people to gather and interact closely with one another on a daily basis, providing a secure network of relationships... Some say "smart growth" or "new urbanism" is the way to mitigate the impacts of growth by relieving development pressure on “greenfield” sites. Ironically, today’s "new urbanism" movement touts the very land use patterns for which Massachusetts is historically famous. In this way, Community Preservation is about bringing the good ideas of the past into the future.” (EOEA, 3)

This cozy form of development is rarely found now in *contemporary* residential development across Massachusetts, whether infill or greenfield. The reason for this is simple. Land use regulations developed over the past century have reduced our traditional forms of settlement to legal and engineering principles such as use restrictions, and nonsensical dimensional requirements. Local land use regulations in Massachusetts are similar to those adopted across much of our nation, emphasizing (in place of the above principles) the following:

1. Arbitrary Separation of Uses and Structures & Complete Dependence on the Automobile
2. Inadequate Provision for Human-Scaled Civic Spaces

In a year 2000 report entitled, “The State of Our Environment,” prepared by the Massachusetts Executive Office of Environmental Affairs (EOEA), the state defines the threat of sprawl as “low density, single-use development on the urban fringe that is almost totally dependent on private automobiles for transportation.” The report provides a detailed explanation for the numerous societal costs of sprawl, from loss of open space, to pollution and infrastructure costs, to loss of “our sense of place.”

The EOEA report indicates that “Since 1950, the population density of developed land in Massachusetts has decreased by more than 50%, from 11.9 persons/acre to 4.97 persons/acre. Each of us now consumes more than twice as much developed land as we did in 1950. Sprawl is not a function of population growth. Between 1950 and 1990, the population of Massachusetts increased by only 28%. In that same period, the amount of developed land increased by 188%. We have used up more land in the half-century since 1950 than was developed in the three previous centuries.”



On the New Urbanism, the report has this to say:

“In other parts of the country, there is a strong push to design and build new towns that have main streets with shops and offices and apartments all mixed together, and residential neighborhoods within walking distance. This concept is called the “New Urbanism.” But in Massachusetts, the New Urbanism is really the old urbanism ... Massachusetts already possesses three-centuries-worth of cities and towns that are attractive, livable, and environmentally sound.”

With regard to contemporary sprawl, the report says “There aren’t any town greens or town squares. Often there aren’t even any sidewalks.” (EOEA) A comprehensive Buildout Analysis conducted for each city and town in the Commonwealth lead the state to this conclusion about local land use regulations:

“The Buildout analyses have shown consistently that most current zoning codes allow far more development than the community could possibly want or absorb and that growth would often occur in inappropriate places.”

The report also notes that existing zoning makes it impossible to reproduce the “livable, pedestrian-friendly” neo-traditional forms of development, such as mixed-use downtowns, and compact (cluster) residential developments. The report recommends that local governments “reform local zoning to encourage appropriate development patterns.” However, this report stops short of making the connection between the percentage of local communities zoned solely for single-family residential development, and their corresponding high Buildout values. As discussed in Chapter 4, the vast majority of our Commonwealth is zoned for subdivision as single-family dwelling lots. Our poor urban form is in large part a cause of social decay and the loss of community pride across this state and our nation. Could a gentle paradigm shift from the influence of private property rights and euclidean zoning toward New Urbanist principles viably further **the reinvention of public space** and the preservation of greenways for generations to come?⁹

⁹ “Towards the Reinvention of Public Space: Implications of the Recent work of Andres Duany and Elizabeth Plater-Zyberk,” the title of a 1990 MCP thesis by David Sundell.

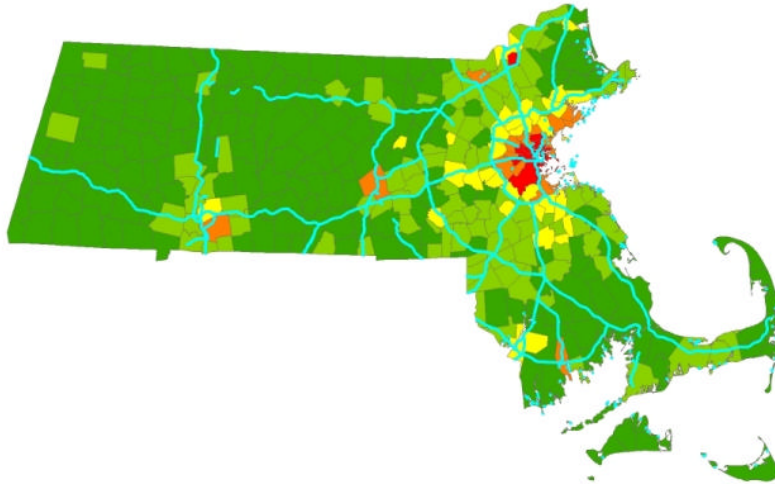


Figure 2.2.: A simple graphic showing population density illustrates the growth pressures radiating from the Greater Boston region. It is not hard to envision this map decades from now, covered in red, orange, and yellow, with only traces of green. Charles Elliot once said, “The time is coming when it will be hard to find within a day’s journey of our largest cities a single spot capable of stirring the soul of man to speak in poetry.”

In a report entitled, “Conserving our Commonwealth: A Vision for the Massachusetts Landscape,” the Trustees of Reservations note that “unplanned development and sprawl are outrunning the opportunities for protecting valuable open space and for linking protected lands into a coherent open space network.” Among other recommendations, this report argues that we must:

- Create stronger incentives to encourage (or to mandate) cluster development; and
- Locate new development in established urban areas and village centers.

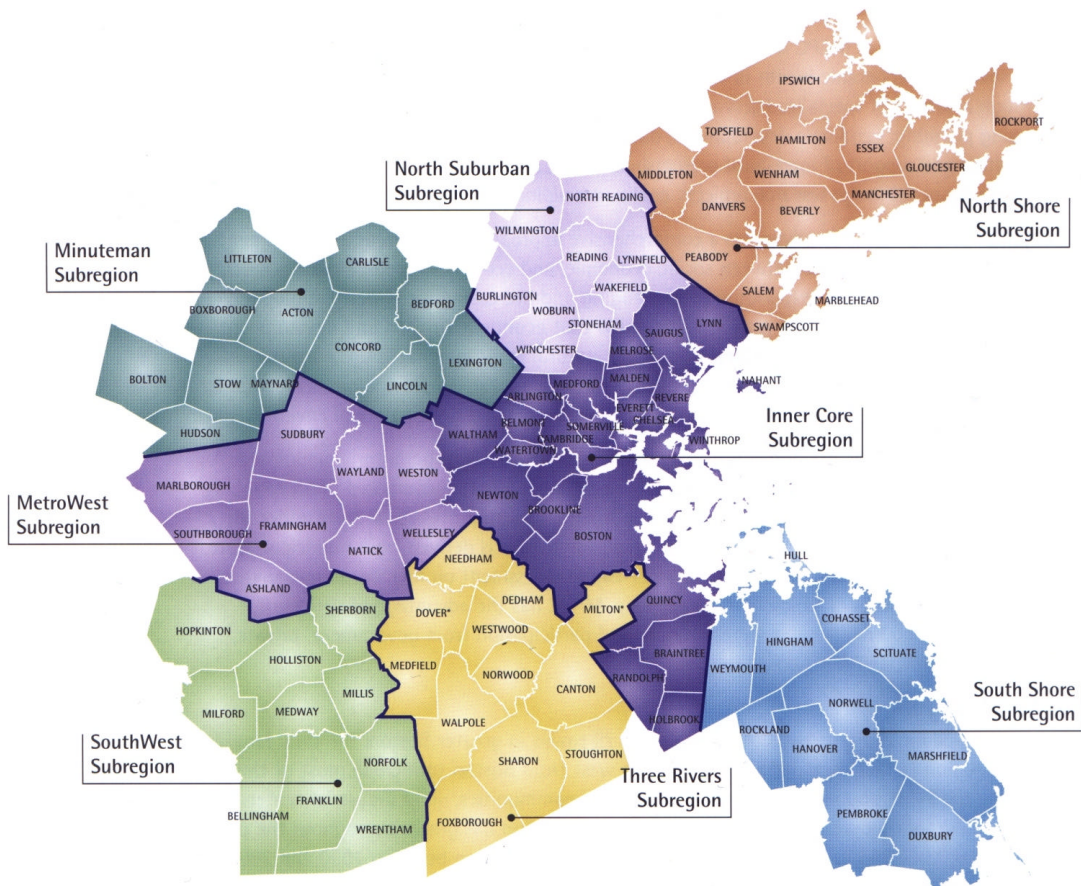


Figure 2.3: The MAPC Region (Greater Boston, for the purposes of this research).

In a report entitled, “A Decade of Change: Growth Trends in the Greater Boston Area – 1990 to 2000,” the Metropolitan Area Planning Council (MAPC) emphasizes the desperate need for regional planning due to current growth pressures and the attendant growth management issues. The two primary “growth trend” changes noted in the report are “the rapid escalation of housing prices and rapid consumption of previously undeveloped land.” Both of these can be attributed in large part to a blanket of excessive large-lot single-family zoning, which not only increases home prices and related development costs, but consumes an inordinate amount of our greenfields.

MAPC estimates that 22,290 acres of land were developed in the Greater Boston region between 1990 and 2000, “an average of 7.6 acres lost per day, the vast majority of which were developed for single-family homes.” (MAPC) The following chart summarizes this relationship for the Greater Boston region:¹⁰

¹⁰ Simplified version of table shown on page 100 of report entitled, “A Decade of Change: Growth Trends in the Greater Boston Region – 1990 to 2000. Report available on the web at www.mapc.org



Year	Undeveloped		Single-Family	
	Total Acres	% of Land	Total Acres	% of Land
1991	547,003	59.6 %	281,640	30.5 %
1999	524,713	57.1 %	300,879	32.7 %
Difference	-22,290	-2.5 %	19,239	2.2 %

Table 2.1. The relationship between total land consumption from new development and total land area of our communities zoned solely for by-right large-lot single-family dwellings.

Among the four iconic mature suburban communities selected in Chapter 5, the Buildout ratios and percentages of land zoned “single-family” were as follows:

	% of Total Land Area Built-Out	% of Total Land Area Zoned “Single-Family”
Boxborough	63.0 %	68.9 %
Reading	88.0 %	93.9 %
Scituate	82.0 %	93.9 %
Westwood	89.0 %	79.9 %

% Buildout (of Total Land Area) vs. % Single Family Zoning (of Total Land Area)

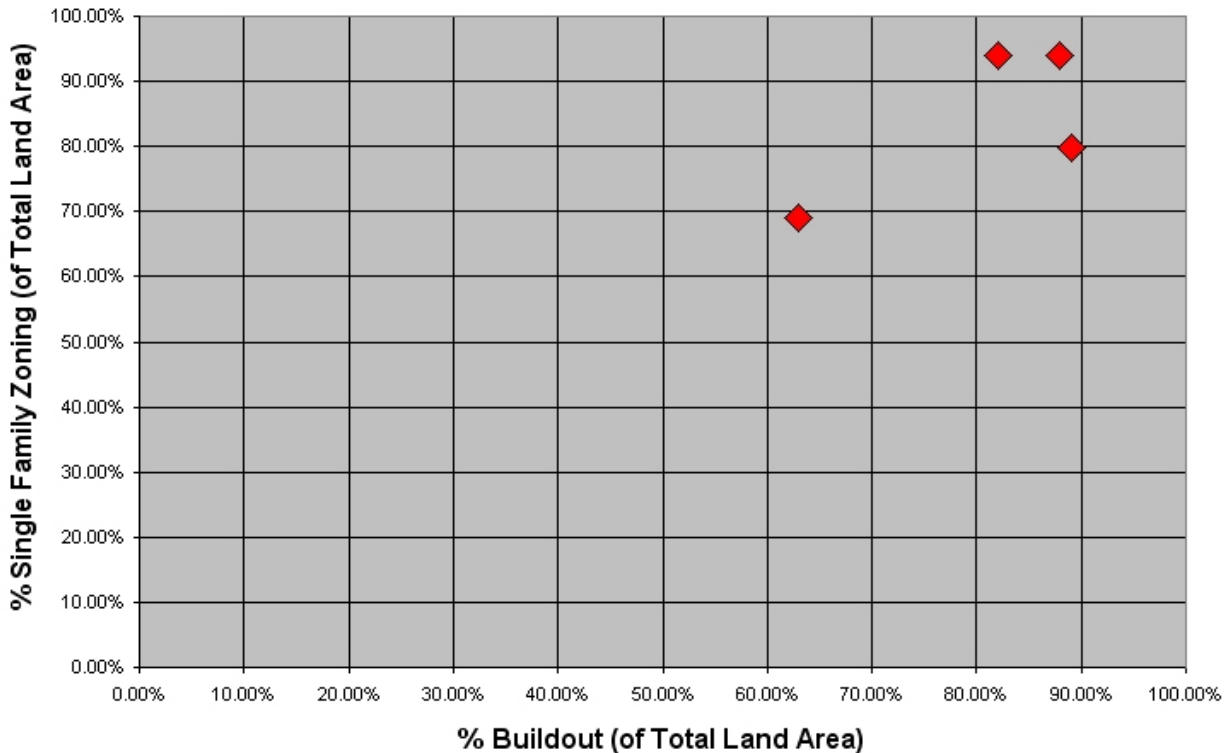


Table 2.2. The relationship between percent community buildout (of total land area) as compared with the percentage of land area zoned solely for by-right large-lot single-family dwellings, in communities selected for this analysis.



Wisdom of the Ages

“Everything that can ever be said has already been said, but since no one was listening it has to be said all over again.”

~Unknown

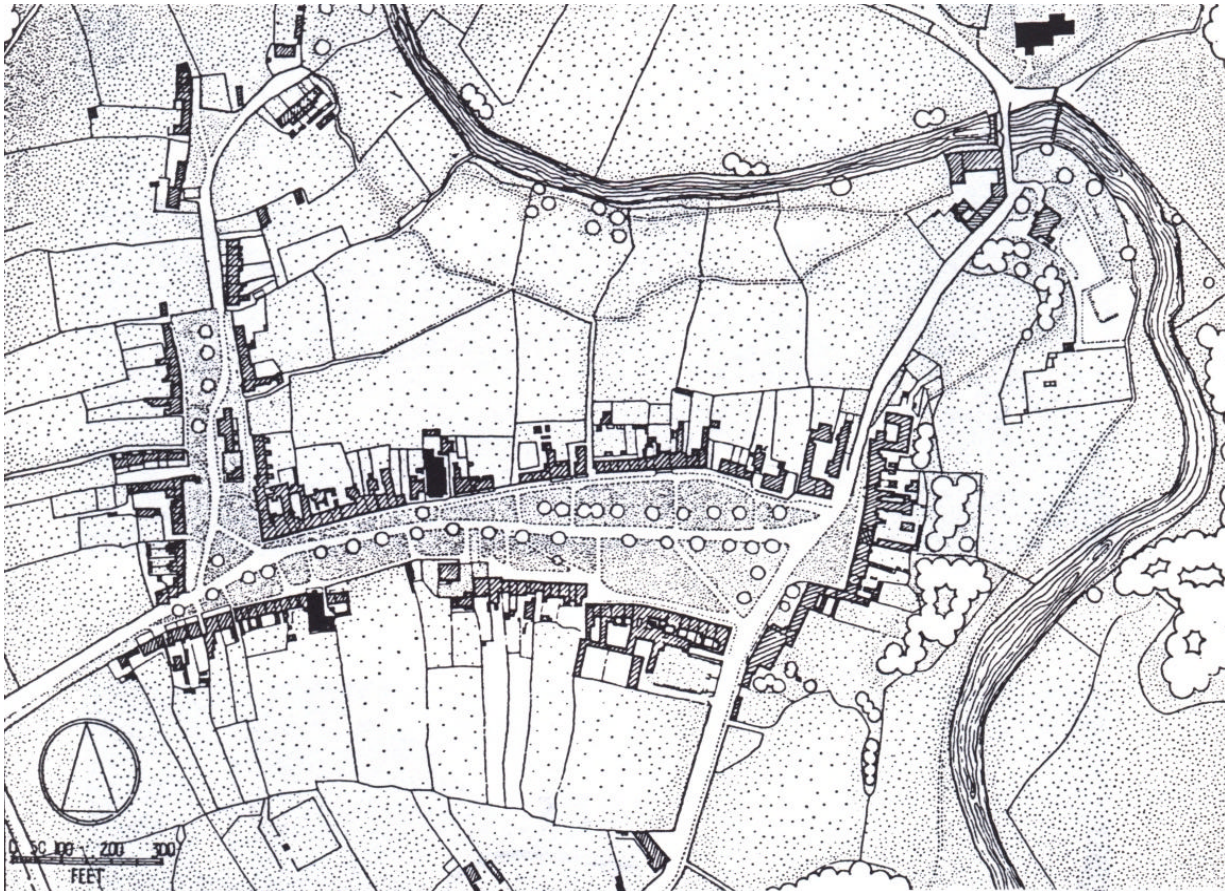


Figure 2.4. An old village plan from England, depicting dwellings oriented around a common green. Notice the sharp transition between the urban area and beyond. “The village is the local climax.” (Brown)

Compact form and the definition of common space are central themes in the New Urbanism, a movement arguing for the return to traditional urban development patterns, proven over centuries of human settlement. The basic human need for social interaction is completely neglected in today’s large-lot single-family subdivisions, where no consideration is given to *proximity* or *civic spaces*.

In the book “The Not So Big House,” author Sarah Susanka illustrates the unfortunate American “starter castle complex” – the notion that houses should be “designed to impress rather than to nurture.” It is this same model, and the simplification of residential development to a mere *subdivision* of land, which characterizes today’s “cookie-cutter” form of residential development in New England. And just as “more rooms, bigger spaces, and vaulted ceilings do not necessarily give



us what we need in a home,” lack of consideration for the **whole** in our new neighborhoods, results in a wasteland of individual homes that fail to provide a sense of place or larger meaning. (Susanka, 3) Concern for the public realm and a relationship to larger society may be the most central tenants of New Urbanism, and of traditional New England development patterns.



Figure 2.5. A photograph of the Town Common in Petersham, Massachusetts captures the traditional New England settlement.



Figure 2.6. An aerial photograph of the Common in Belchertown, Massachusetts reminds us that there are still centuries-old civic spaces and compact urban forms left to inform today’s residential development.

The following chapters illustrate the application of New Urbanist principles to the development of residential infill in mature suburbs of Greater Boston. This analysis is intended to demonstrate the viability and benefits of New Urbanism as a framework for residential infill as an alternative to wasteful sprawl at the fringes of our existing suburbs.¹¹ It is time to rethink our “by-right” development patterns, and to sculpt them into expressions of efficiency and timeless human needs.

Hypothesis & Argument

My hypotheses for this research were three-fold:

1. Residential infill development in mature suburbs of Greater Boston has been largely uninfluenced (and unimproved) by the New Urbanism.

¹¹ *Infill as defined by the State is “Developing on empty lots of land within an urban area rather than on new undeveloped land outside the city or town.”*



2. A major obstacle to implementing New Urbanist development in mature suburbs of Greater Boston is the web of narrowly defined land use regulations imposed on infill development.
3. New Urbanism is a viable alternative to the planning and design of residential infill in mature suburbs of Greater Boston.

Research Questions

As noted above there has been a significant amount of literature on the general benefits of New Urbanism. My research questions explore a segment which is not yet understood: the implications of New Urbanism for residential infill in Massachusetts. The questions addressed are as follows:

- To what extent have recent residential infill developments in mature suburbs of Massachusetts responded to the call of New Urbanism?
- What are the obstacles to implementing New Urbanist forms of residential infill development?
- What is the viability of applying New Urbanist principles to remaining infill parcels that would otherwise be developed only for large-lot single-family homes?
- What would such infill development look like?
- What changes need to be made to municipal land use regulations to encourage compact residential infill development (New Urbanism) as an alternative to outward sprawl (conventional development)?

Framework & Methodology

Unlike MIT theses which analyze and *describe* a relationship between two variables to support an argument, this thesis *prescribes* the application of one model to a narrow range of case studies in order to assess its viability. In this case, selected New Urbanist principles are applied to the development of residential infill in mature suburbs of Greater Boston.

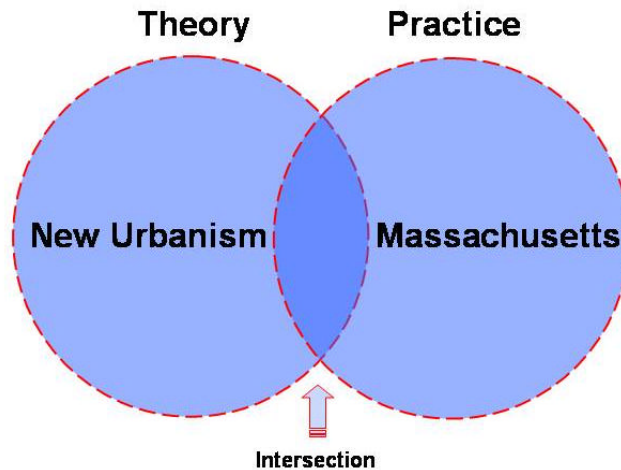


Figure 2.7. A Venn Diagram illustrates making a connection between the theory of New Urbanism and its implementation.

With the broader goal of *bridging the gap between theory and implementation*, this Thesis will focus on the *application* of New Urbanist principles through regulation. In the effort to avoid regurgitation of theories and concepts well-documented, and to provide for a manageable and focused analysis, this research focuses on the application of two key principles of new urbanism:

1. Compact and Efficient Urban Form (both in individual lot size and clustering of the whole)
2. Emphasis on and Definition of Common Space (the public realm)

The research begins with background information on the New Urbanism and on the structure of land use regulations in Massachusetts (Chapters 3 and 4, respectively). A connection is then made between the theory of new urbanism and the reality of local land use regulations by applying these principles of New Urbanism to selected residential infill developments used as case-studies. The process of community selection is illustrated in Chapter 5, and the base-line “by-right” developments are discussed in Chapter 6. Analysis of four case-study developments (plan and regulation) is followed by a post-mortem design alternative for two selected developments (Chapter 7). A Model Hamlet Development Bylaw (Appendix B) was developed and used as guidance in the creation of the alternative development plans, within the framework of Massachusetts land use regulations. Key findings, obstacles to the implementation of New Urbanism, and recommendations for future work, are provided in Chapters 8 and 9.

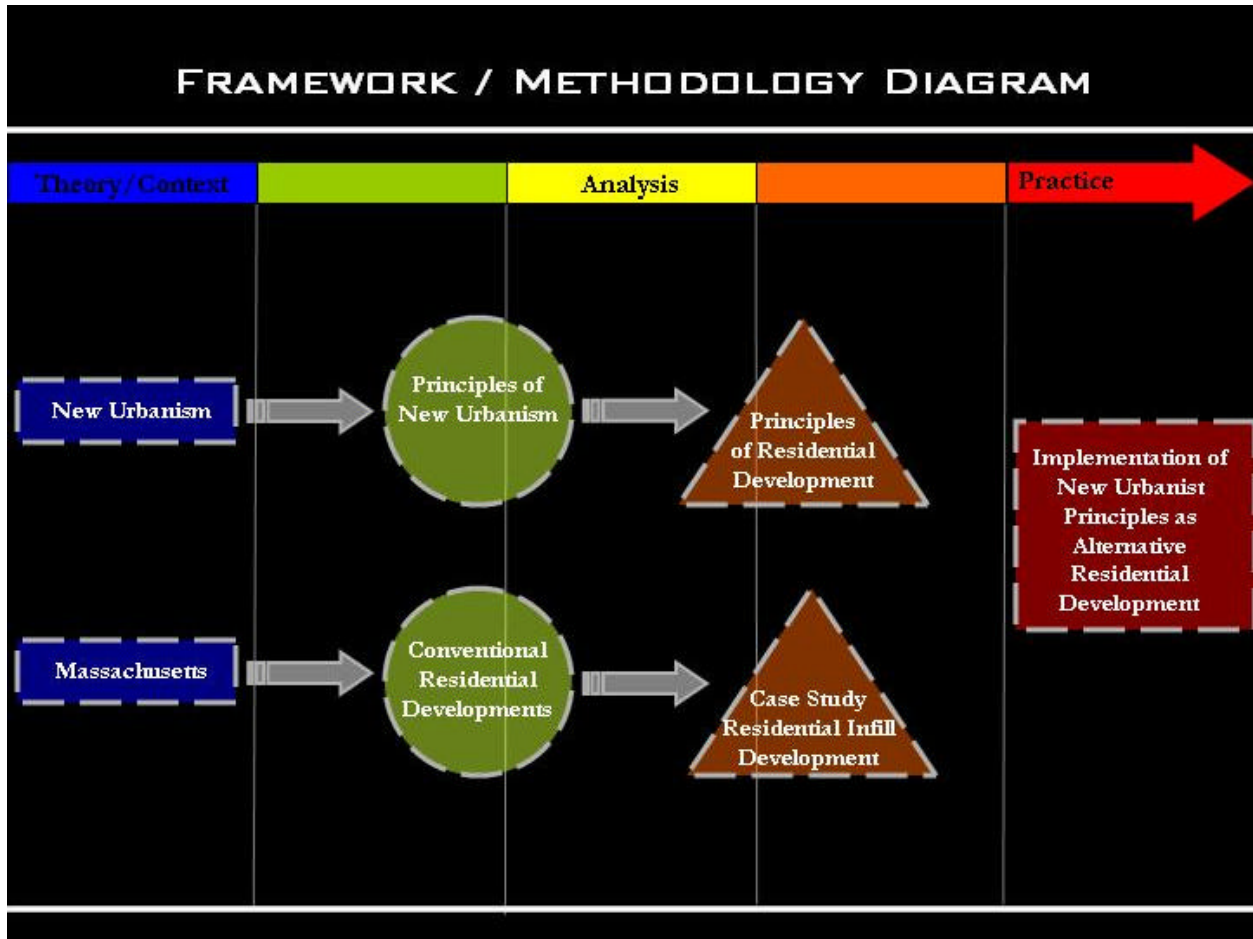


Figure 2.8. The Framework & Methodology for this research is diagramed.



CHAPTER 3: BACKGROUND ON NEW URBANISM

“What it is, is bringing all the separated land uses back together into an integrated form of development ... A sensibly laid out town or city would, in fact, have all of the necessities and pleasures of daily existence within walking distance of one's residence. You might have to use mechanical transportation to go to the opera, but you should not need to use a car to get a quart of milk, nor should you have to be a chauffeur for your children.”

~ Andy Kunz, on the New Urbanism

“At New Year's, everyone would go out on their porches and bang pots and pans at midnight to ring in the New Year -- you'd hear a cacophony of joyous racket throughout the community as neighbors greeted one another. When a neighbor needed help, everyone pitched in. My mother's friendships forged during all her years growing up in the Grove remain some of her strongest. And everyone spoke to one another, looked after one another, and knew each other's children and family. You felt that overwhelmingly warm, cocooning feeling like you were "home.”

~ Robert Davis, on his hometown Washington Grove, and the “feeling” Seaside, Florida was intended to recreate.

Sprawl, New Urbanism & the Popularity of Neo-Traditional Town Planning

The problems of sprawl are caused in large part by rudimentary land use regulations which address only a small range of urban development issues. Originally designed to address issues of nuisance, minimum design standards, and the separation of incompatible uses, zoning and subdivision regulations are fairly interchangeable across Massachusetts.

New Urbanism is an increasingly popular movement in urban planning, architecture, and community design. New Urbanism is also given the name “traditional neighborhood development” (TND), because in many respects, it calls upon the lessons of urban form over a century ago - before the advent of the automobile - where people bought their groceries at small “mom and pop” stores, their meat at the local butcher, their pastries at the local baker. Everyone knew everyone else because there was a sense of community – at a scale that could be lived and appreciated. The beauty of this “sense of place” is what New Urbanists strive to revive. Borrowing from urban design concepts throughout history, the New Urbanism seeks to recreate the compact close-knit communities of our past.

The New Urbanism offers an alternative paradigm for urban development intended to create destinations truly designed for **people**. While model New Urbanist regulations and guidelines



cannot be universally applied across the Commonwealth, the principles driving them are of benefit to all communities. The failure of our conventional land use regulations to create “places worth caring about” is not a failure of regulation itself, but rather the result of **poorly crafted** regulations too narrowly defined.

“New Urbanism isn’t really new ... It’s how we have built towns for more than 4,000 years, places built on a human scale with a sense of place and community. After World War II, planners discarded recorded history. They decided to build places for the automobile instead of the person, and the result has been more than 50 years of suburban sprawl.” (Burchell)

Traditional patterns of growth are proven to reduce land consumption and save infrastructure costs. Sprawl developments on the other hand, “continue prior trends of agricultural and other frail land consumption, significant road/pavement construction, and high amounts of water and sewer infrastructure provision. This type of development has been reported to have contributed to both higher housing costs for new households and predominantly negative fiscal impacts to host public service jurisdictions.” (Burchell, 2)

“Associated with this movement outward are both (1) the requirement for more land and public infrastructure to service the radiating growth, and (2) the increasing underutilization of core land and infrastructure. The dual costs of (1) providing new infrastructure for those who are moving outward, and (2) maintaining the old infrastructure for the population and economic entities that are left behind, cause taxes and development costs to rise throughout the metropolitan area, thus causing a regional rise in the costs either to do business or to reside in the area.” (Burchell, 3)

The Transect: Compact Development & the Preservation of Open Space

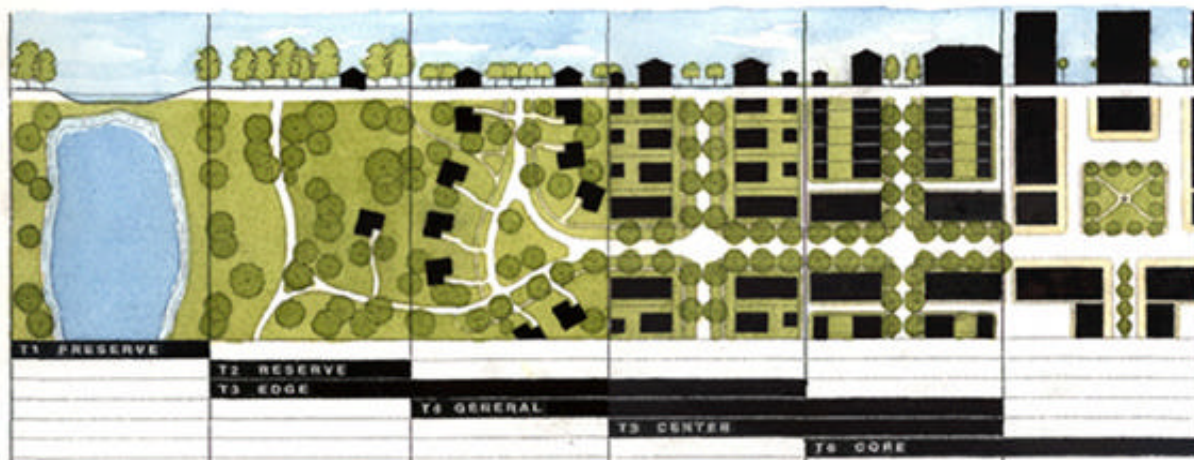


Figure 3.1: This plan illustrates how the Transect classifies the elements of human settlements from rural to urban, in a left-to-right sequence. The Transect has six zones, moving from rural to urban. It begins with two that are entirely rural in character: Rural preserve (protected areas in perpetuity); and Rural reserve (areas of



high environmental or scenic quality that are not currently preserved, but perhaps should be). The transition zone between countryside and town is called the Edge, which encompasses the most rural part of the neighborhood, and the countryside just beyond. The Edge is primarily single family homes. Although Edge is the most purely residential zone, it can have some mixed-use, such as civic buildings (schools are particularly appropriate for the Edge). Next is General, the largest zone in most neighborhoods. General is primarily residential, but more urban in character (somewhat higher density with a mix of housing types and a slightly greater mix of uses allowed). At the urban end of the spectrum are two zones which are primarily mixed use: Center (this can be a small neighborhood center or a larger town center, the latter serving more than one neighborhood); and Core (serving the region — typically a central business district). Core is the most urban zone.¹² The suburb offends our sensibilities, because it is, in the words of Andre Dauny, “neither urban or rural it is a transect violation.”¹³

The conditions of urban sprawl are not unique to any community or region in the United States. Inefficient land use and layout of public infrastructure, from roads to utilities, is the result of an outdated model of urban design. In this model the **excessive** separation of uses and **complete** reliance on the automobile as a form of transportation has meant the loss of great urban cores, such as downtowns and village centers. The loss of a **hierarchy or transect** in urban density and development, from the most urban to the most rural, has meant the loss of community orientation. Greenways and urban growth boundaries must become something meaningful in our way of **community development**, not merely the preservation of open space. A civilized society must provide for civic spaces as well as the preservation of open space.

Coherence and Cohesiveness: Civic Space & Good Urban Form

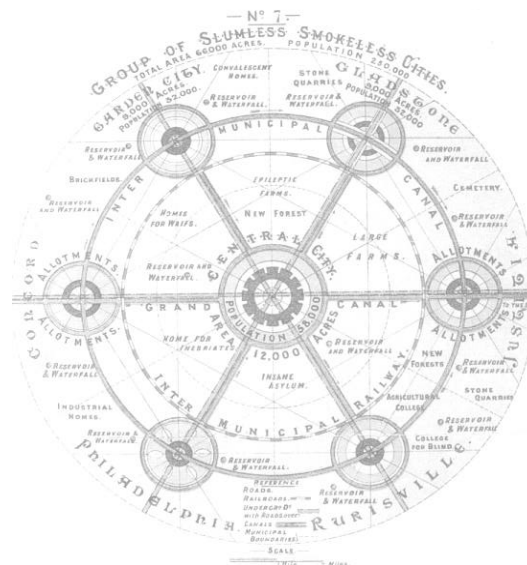


Figure 3.2: Ebenezer Howard’s Garden City Diagram illustrates the concept of coherent urban form. By creating compact clusters of urban development, the New Urbanism (like the Garden City) provides hierarchy and orientation to our overall urban development.

¹² Image and summary adapted from article “Transect Applied to Regional Plans” in the September 2000 issue of New Urban News (www.newurbannews.com).

¹³ Andre Duany, speaking at the 25th Annual American Planning Association Conference in Washington, D.C., 2004.



There are many benefits of adhering to the development principles of New Urbanism. Conceptually, the New Urbanism offers the benefit of coherent urban form, planned with forethought and consideration of spatial orientation and hierarchy. The town of Seaside Florida, designed by Architects from Duany Platter-Zyberk (DPZ) provides a clear orientation toward civic spaces and a sharp contrast between urban development, and preserved open space beyond.

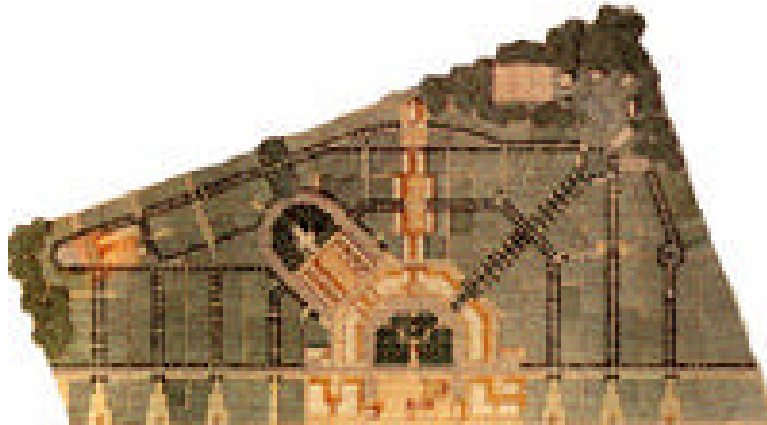


Figure 3.3: The planned community of Seaside, Florida (primarily residential) closely follows the Garden City form of development in both concept and implementation.

Under contemporary land use regulations, the development of each private property for residential neighborhoods is allowed without consideration for common spaces or the preservation of open space. Residents of contemporary Massachusetts neighborhoods enjoy proximity to other members of the community primarily in the public right-of-way (roads). This is to say that the public realm for adults (and sadly for our nation's children) is generally that of the roads that get us from point A to point B within those little isolating bubbles we call the automobile. **While the separation of incompatible land uses (such as residential and industrial) is a justifiable public interest, the arbitrary and excessive separation of dwelling units and housing types into cookie-cutter subdivision tracts is not.**

Just as a poor (or sprawling) urban form can decrease the sense of community, good urban design can increase the sense of community through a hierarchical orientation of the physical realm and a more orderly network of public roads, greenways, parks, plazas, and so forth.

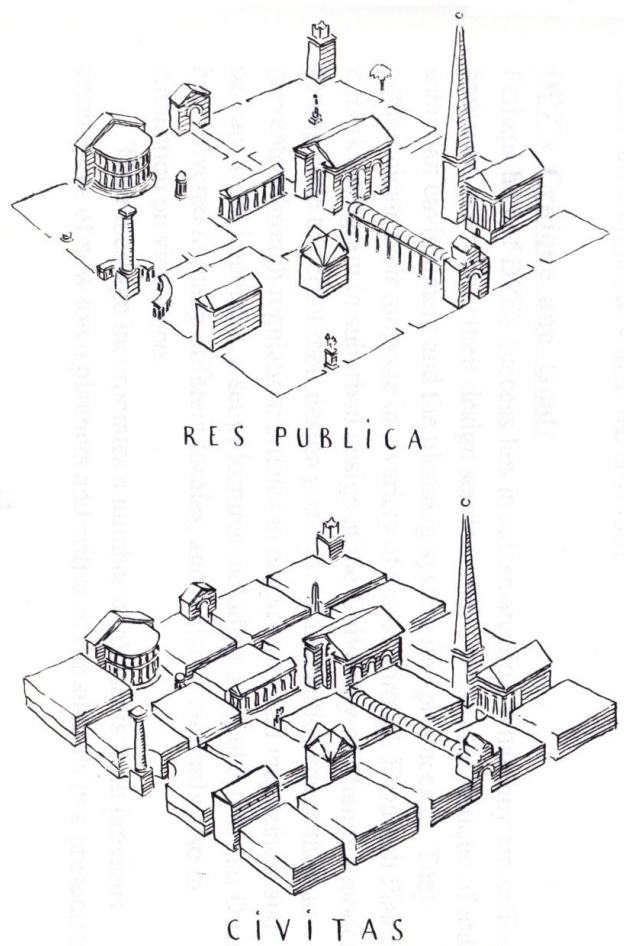


Figure 3.4: Ancient civilizations were developed around public spaces and civic institutions. Alex Krier's diagram of public and private spaces illustrates this concept. (Brown)

The physical environment (our urban environs) influences the social vitality of society (for better or worse). Traditional urban settlements (across New England, and through the centuries) were oriented toward civic spaces and public institutions. This simple orientation, in addition to compact form, can enlighten the current pattern of residential infill in Greater Boston suburbs by emphasizing the public good as the focus of our neighborhoods and communities.

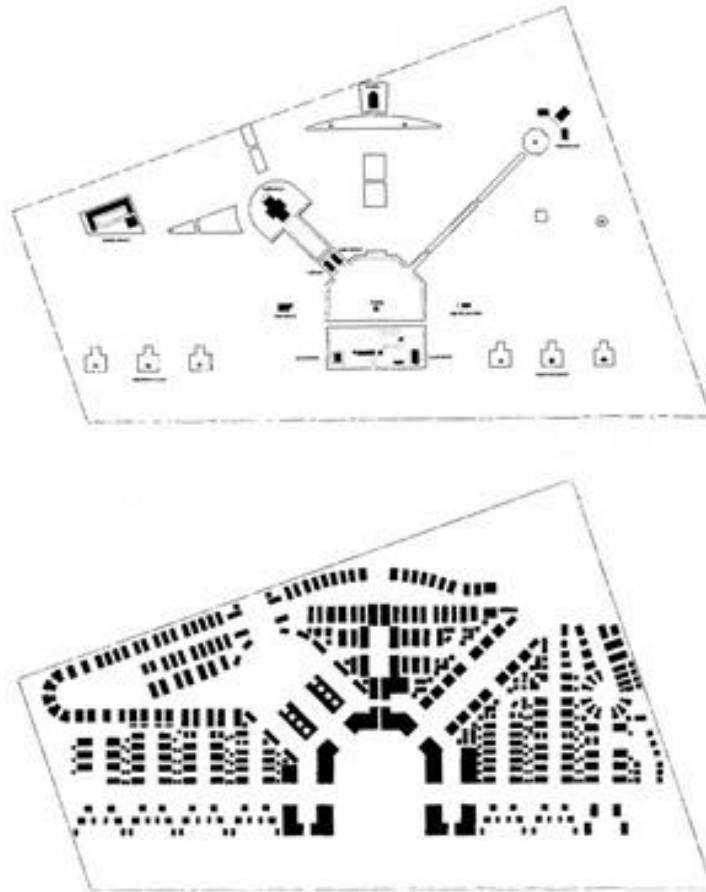


Figure 3.5: The above diagrams for the plan of Seaside illustrate the timeless orientation of urban settlements toward common civic spaces. Note the sharp similarity to the previous figure.

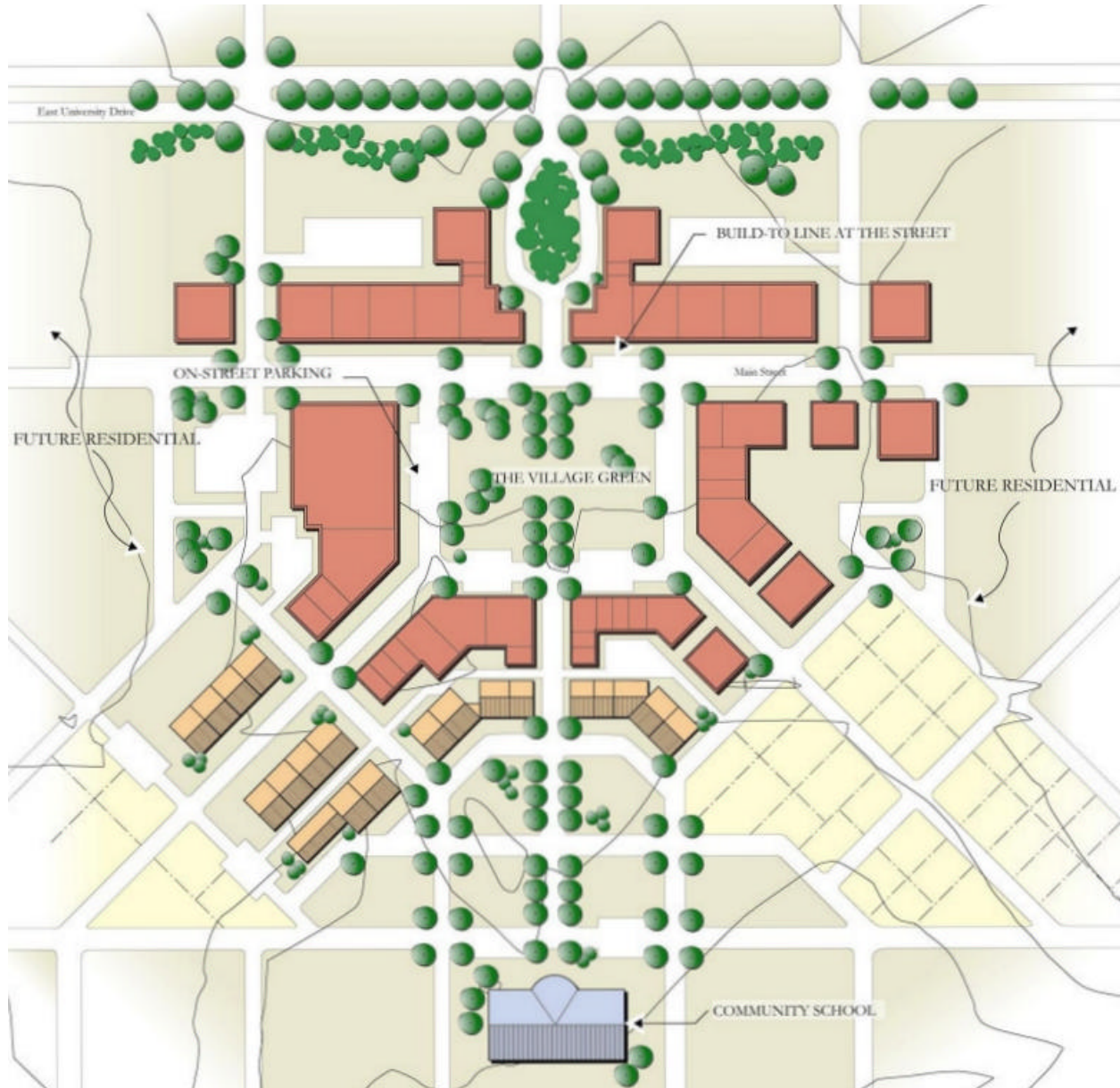


Figure 3.6: Civic spaces are the focus of New Urbanist developments whether residential or mixed-use.

“Seaside is the kind of place that is all about reconnecting -- reconnecting with your family, your sense of time, your ability to relax, your sense of community, your enjoyment of the simple things, and your sense of self. It is about taking the time to watch a sunset, to stare up at a night sky full of shimmering stars, to speak to your neighbors, to take long walks and to talk with those you love.”

~A sample of the “fuzzy-feeling” affectionate adjectives used to describe Seaside.



The form of the urban environs can be designed to create a sense of place and promote the feeling of community, by increasing the frequency of person-to-person interaction. Broad porches, mandated in the Seaside architectural code, promote neighborliness, as does the proximity of the houses, and the pedestrian-only walk-ways linking the cottages.



Figure 3.7: Residents of Seaside can stop to talk with their neighbors. Porches are mandatory to create a greater connection between the private home and the public realm. (Note that the existence of porches would do little to encourage socialization behind the excessive setbacks required under local zoning codes in Massachusetts.) Older New England houses often have front porches that connect them to the street and the community beyond. These transitional spaces provide a place of shaded respite during the summer months and increased social interaction with neighbors passing by.

In America, there are two primary types of settlement today: the traditional neighborhood, which was the model in America from the first settlements until World War II, and suburban sprawl, which has been the model since then. New Urbanism is rooted in the design of neighborhoods. Andres Duany and Elizabeth Plater-Zyberk (DPZ), architects and urban designers, utilized twelve guiding principles in development of the Seaside neighborhood, culled from centuries of tradition, that distinguish America's best neighborhoods and small towns. According to DPZ and the Congress



for New Urbanism (CNU) authentic neo-traditional (New Urbanist) neighborhoods contain the following key attributes: ¹⁴

- The neighborhood has a discernible center, public square or green.
- The neighborhood has visually discernible edges where the neighborhood ends, formed by transportation corridors or by natural and agricultural landscapes.
- Dispersed throughout the neighborhood are a range of parks, from tot-lots and village greens to ballfields and greenbelts.
- The neighborhood has streets laid out in a network, so that there are alternate routes to most destinations. This permits most streets to be smaller with slower traffic, and to have parking, trees and sidewalks. Such streets are equitable for both vehicles and pedestrians, encourage walking, and reduce the number and length of automobile trips.
- The neighborhood places its buildings close to the street, so that streets and squares are spatially defined as ‘outdoor rooms’. This creates a strong sense of the neighborhood's centers and streets as places, and of the neighborhood itself as a place.

Characteristics of New Urbanism in Residential Development

The principles of New Urbanism provide an alternative to our wasteful contemporary development pattern. While there are numerous characteristics of New Urbanism providing a desirable alternative to conventional development patterns, only two of these are the focus of this inquiry. The following table¹⁵ summarizes the salient points of these two features, which will serve as evaluation criteria in the review of residential infill developments (the designs and regulations) in Chapters 6, 7, and 8.

Evaluation Criteria	Conventional Development	New Urbanism
Compact Development & Preserved Greenways	<ul style="list-style-type: none">• Loss of open space• Separation of land uses and structures (low-density sprawl blanketing entire landscape)• Waste of land & infrastructure• Large lot sizes and setbacks• Encouragement of sprawl	<ul style="list-style-type: none">• Permanent preservation of open space and environmental resources (integration of greenways into urban form)• Compact (higher density) neighborhoods (concentrated in areas of least environmental impact).• Economy of land & infrastructure

¹⁴ Adapted from key New Urbanist principles identified by the Congress for the New Urbanism (www.cnu.org) for the design and development of residential neighborhoods.

¹⁵ Developed in review of the Charter for New Urbanism & Ahwahnee Principles, available on the Congress for New Urbanism (CNU) Website (www.cnu.org). The full text of the Charter of New Urbanism can be found in Appendix A.



Common (Civic) Spaces	<ul style="list-style-type: none">• Absence of public and common spaces (aside from roadways designed for the automobile)	<ul style="list-style-type: none">• Clearly defined town and neighborhood centers (including an ample supply of public squares, parks, commons, greens, tot-lots)• Physical definition of streets and public spaces as places of shared use.• Human-scale, Pedestrian and transit-oriented development (pedestrian-oriented networks)
------------------------------	---	---

Table 3.1: Key principles and defining characteristics of New Urbanism used in this analysis.

The above characteristics are summary, and provide general evaluation criteria for the selected case study developments. These criteria apply to *residential neighborhood development only*, and do not address other principles of New Urbanism which may also improve the conventional model of development (sprawl).



CHAPTER 4: BACKGROUND ON LAND USE PLANNING IN MASSACHUSETTS

The Massachusetts Context

Zoning and subdivision regulations in Massachusetts Cities and Towns may be seen as a sample of land use regulations across the nation, many of which follow the model of New York City's first zoning regulations in 1920.

Home Rule Authority

For better or worse the 351 cities and towns of the Commonwealth each determine the appropriate use of land and form of neighborhood development within their municipal boundaries. Each community is empowered to enact local zoning, subdivision, and other regulations to promote the general welfare under several specific statutes.

Municipal zoning powers do not principally derive from the Zoning Act but from the "Home Rule Amendment," and cities and towns are free to indulge any legislative preference for their unique and local conceptions of good planning, save only that what they do not conflict with state law. Under the Home Rule Amendment to the Massachusetts Constitution (Article II § 1) each municipality of the Commonwealth is granted the authority to enact such laws as are deemed necessary for protection of the public good and the regulation of land therein. The article states:

"It is the intention of this article to reaffirm the customary and traditional liberties of the people with respect to the conduct of their local government, and to grant and confirm to the people of every city and town the right of self-government in local matters, subject to the provisions of this article and to such standards and requirements as the general court may establish by law in accordance with the provisions of this article."

Zoning Regulations

Under the old Zoning Enabling Act (Massachusetts General Laws, Chapter 40A - 1954) each municipality of the Commonwealth was granted the authority to enact land use regulations throughout the community, bounded only by the state constitution, applicable federal laws, and consistency with related state statutes. In 1975, the new Zoning Act (Massachusetts General Laws, Chapter 40A) replaced the previous statute in order "to facilitate, encourage, and foster the adoption and modernization of zoning ordinances and bylaws by municipal governments; and to establish standardized procedures for the administration and promulgation of municipal zoning bylaws." (DHCD, annotated version) The statute grants broad flexibility in land use regulations, in accordance with the Home Rule Amendment to the Massachusetts Constitution.



A typical Zoning Ordinance or Bylaw begins with a Purpose section indicating the objectives of the regulations. This section is essential, as it establishes the sufficient governmental objective for the regulation of private land within the community. While such a list of purposes and objectives is no longer contained within M.G.L. Chapter 40A, they can be found in Section 2A of Chapter 808 of the Acts of 1975. The following passage is excerpted from the City of Peabody Zoning Ordinance, and includes objectives representative of such zoning regulations across the Commonwealth:

“Purpose: The purposes of this ordinance include, but are not limited to, the following: to lessen congestion in the streets; to conserve health; to secure safety from fire, flood, panic and other dangers; to provide adequate light and air; to prevent overcrowding of land; to avoid undue concentration of population; to encourage housing for persons of all income levels; to facilitate the adequate provision of transportation, water, water supply, drainage, sewerage, schools, parks, open space and other public requirements; to conserve the value of land and buildings, including the conservation of natural resources and the prevention of blight and pollution of the environment; to encourage the most appropriate use of land throughout the city, including consideration of the recommendations of the comprehensive plan, if any, adopted by the planning board and the comprehensive plan, if any, of the Metropolitan Area Planning Council; and to preserve and increase amenities in the City of Peabody.

Regulations adopted pursuant to these purposes may include, but are not limited to, restricting, prohibiting, permitting or regulating the use, alteration, height, area and location of buildings and structures and the use of premises in the City of Peabody.”

Subdivision Control

The Subdivision Control Law (Massachusetts General Laws, Chapter 41 § 81K-GG) was enacted in substantially its present form in 1953. M.G.L. Chapter 41 § 81M states:

“The subdivision control law has been enacted for the purpose of protecting the safety, convenience and welfare of the inhabitants of the cities and towns in which it is, or may hereafter be, put in effect by regulating the laying out and construction of ways in subdivisions providing access to the several lots therein, but which have not become public ways, and ensuring sanitary conditions in subdivisions and in proper cases parks and open areas.

The powers of a planning board and of a board of appeal under the subdivision control law shall be exercised with due regard for the provision of adequate access to all of the lots in a subdivision by ways that will be safe and convenient for travel; for lessening congestion in such ways and in the adjacent public ways; for reducing danger to life and limb in the operation of motor vehicles; for securing safety in the case of fire, flood, panic and other emergencies; for insuring compliance with the



applicable zoning ordinances or by-laws; for securing adequate provision for water, sewerage, drainage, underground utility services, fire, police, and other similar municipal equipment, and street lighting and other requirements where necessary in a subdivision; and for coordinating the ways in a subdivision with each other and with the public ways in the city or town in which it is located and with the ways in neighboring subdivisions. Such powers may also be exercised with due regard for the policy of the commonwealth to encourage the use of solar energy and protect the access to direct sunlight of solar energy systems. It is the intent of the subdivision control law that any subdivision plan filed with the planning board shall receive the approval of such board if said plan conforms to the recommendation of the board of health and to the reasonable rules and regulations of the planning board pertaining to subdivisions of land; provided, however, that such board may, when appropriate, waive, as provided for in section eighty-one R, such portions of the rules and regulations as is deemed advisable.”

The Subdivision Control Law grants authority to local Planning Boards to “adopt ... reasonable rules and regulations relative to subdivision control not inconsistent with the Subdivision Control Law or with any other provisions of a statute or of any valid ordinance or by-law of the city or town.” (Massachusetts General Laws, Chapter 41 § 81Q) Case law has clarified that any rules adopted by planning boards pursuant to M.G.L. Chapter 81Q must remain within the substitutive boundaries of M.G.L. Chapter 81M (above).

M.G.L. Chapter 41 § 81O states:

“No person shall make a subdivision of any land in any city or town in which the subdivision control law is in effect unless he has first submitted to the planning board of such city or town for its approval a plan of such proposed subdivision, showing the lots into which such land is to be divided and the ways already existing or which are to be provided by him for furnishing access to such lots, and the planning board has approved such plan in the manner hereinafter provided.”

The Relationship between Zoning & Subdivision Control: Lotting to Oblivion

Zoning regulations primarily restrict the use and dimensions associated with land development, while subdivision control primarily regulates the creation of adequate public ways and utilities within new developments. The two major regulatory impediments to implementing New Urbanism in residential developments across Massachusetts are the parcelization of **all** land in new subdivisions (conventional subdivision control) and the **excessive** separation of dwelling units on large lots (arbitrary minimum dimensional requirements in zoning). The result of this configuration is the privatization of **all** land in new neighborhoods, and the complete absence of both greenways and common spaces providing for the environmental and social sustainability of new neighborhoods.



The Threat of Large-Lot Single-Family Zoning: “The Geography of Nowhere”

The larger portion of Massachusetts cities and towns are zoned single-family residential. If we look at the resulting Buildout across the state, the consequences are devastating. The consumption of land for single-family residential sprawl is the largest threat to greenfields preservation by total land area. Recent focus has been placed on mixed-use transit-oriented development. Significantly less attention has been given to the wasteful form of residential developments surrounding these centers, which cover the larger part of developed cities and towns, and comprises the larger part of zoning districts in less developed communities.

Conventional residential development in Massachusetts is thus characterized in great part by large-lot single-family tract subdivisions. The cumulative impact of such development will eventually lead to the wasteful (and unnecessary) “buildout” of the Commonwealth. We continue to lot all land into parcels of arbitrary size, orientation, and use, with the confused and irrational single-family “frontier” mentality, each of us hoping to get a piece of land apart from our fellow citizens. The inevitable result of this piecemeal approach will mean not only the loss of irreplaceable greenfields, but the creation of neighborhoods, which are, as James Howard Kunstler says, “nowhere in particular.” These developments are cookie-cutter sprawl, rather than communities which are part of a coherent whole. The design alternatives in Chapter 7 demonstrate the possibilities of implementing of New Urbanist regulations.

Sustainability: Land Use Regulations as a Tool of Government Action

Land use regulation is the key tool empowering a municipality to establish and regulate an urban design policy. In essence Zoning is the DNA for the physical development of our communities and should be respected and cautiously considered as such. Zoning and other land use regulations can have not only desirable, but *un-intended* or even *undesirable* affects on urban design within the community. One of the key responsibilities of local land use planners is to support “good urban design” policies.

With few exceptions of piecemeal experiments, additions and modifications (usually allowed only by Special Permit), Zoning Ordinances across the Commonwealth are devoid of innovation toward the development of compact communities which provide sufficient public space and preserve open space. Many have not undergone comprehensive revisions in several decades. If land use regulations are the DNA of our physical surroundings, then we must devote ourselves to ensuring that our codes produce the kind of neighborhoods worth living in. “Primary in the move to sufficiency is the growing recognition that we cannot continue to squander the earth’s resources at the current rate.” (Susanka, 184) We must re-write our land use codes to *require* a responsible and cohesive urban form which provides economic efficiency, environmental protection, and social justice.

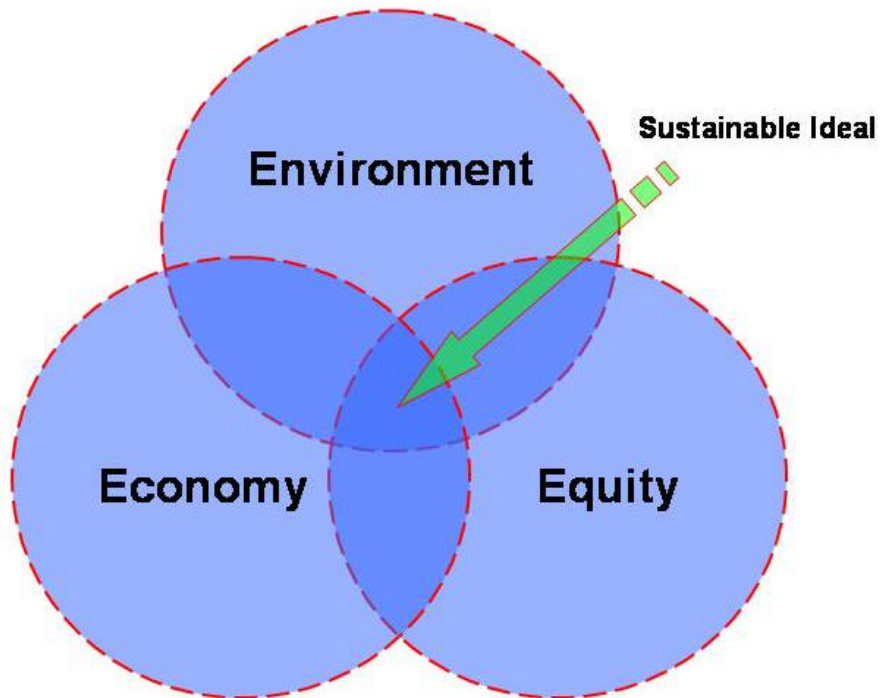


Figure 4.1. The Three E's of Sustainability essential to New Urbanism and Smart Growth; Economy, Environment and Equity.

Splicing the New Urbanism into Local Codes

The implementation of traditional euclidean zoning regulations across the Commonwealth has had a tremendous impact on the form of our communities. Conventional zoning regulations, implemented similarly across the nation, were once intended to improve the physical form of the city for the benefit of all. In recent decades, however a growing collective consciousness (many of whom are New Urbanists) has begun to question the rationale guiding the specific requirements of the regulations. While some provisions have improved the quality of life in our communities, others have had *drastic* negative impacts on the environment, development costs, and our quality of life. Conventional zoning and subdivision regulations clearly do not produce the desirable urban forms and traditional neighborhoods that the New Urbanism does. What would New Urbanist residential infill development look like for Massachusetts, and how can we splice it into our local zoning codes? The remaining chapters illuminate this inquiry.



CHAPTER 5: COMMUNITY SELECTION PROCESS

In order to demonstrate the viability of applying New Urbanist principles to residential infill, it was necessary to select a small and manageable set of communities and ultimately to identify two development projects for design analysis. Community selection was made according to the following criteria:

- All selected communities are within Greater Boston, as defined by the MAPC region.
- All communities are suburbs as defined by the state. (The Department of Revenue (DOR) utilizes the term “Kind of Community” to identify such status.)
- All selected communities have a municipal GIS to allow for a more detailed contextual analysis.
- All selected communities have a complete and up-to-date version of their Zoning Ordinance and Subdivision Regulations accessible (via the internet) to allow for an accurate and detailed review of regulatory issues involved in the analysis.
- All selected communities have a population of less than 26,415, representing the majority of MAPC (Greater Boston) communities.
- All selected communities have a total land area of less than 18 square miles, representing the majority of MAPC (Greater Boston) communities.
- All communities are currently above 50% “Buildout” (of total developed land area) according to a recent Buildout analysis conducted by the State of Massachusetts.
- All communities illustrate the clear (pure) defect of excessive land area zoned for by-right large-lot single-family residential development.

A request was made to the Planning Department of each of the remaining communities (Boxborough, Reading, Scituate, and Westwood) for subdivision plans, roughly five acres in size¹⁶ or larger, emblematic of approval under zoning and subdivision regulations currently in effect. All selected development projects are emblematic of the remaining “by-right” single-family residential infill developments in mature suburbs of Greater Boston.

Each community was generous enough to provide the requested plans and background information, but only two communities (Boxborough and Reading) were selected for the analysis¹⁷ – application of the selected New Urbanist principles to post-mortem development alternatives (Chapter 7).

While the above selection process allowed for a more detailed review of the selected projects, it is noted that these are important limitations on the scope of this thesis. Caveats accompany any

¹⁶ This was requested to allow for a manageable size developments to be illustrated in this analysis.

¹⁷ Due to time restrictions, available information on the approved developments, and the design flexibility afforded by larger overall tract size.



research project, regardless of their breadth or depth, and it is this researchers informed opinion that these source limitations do not alter the transferability of recommendations herein.

The following maps graphically illustrate the community selection process described above and used in this analysis:

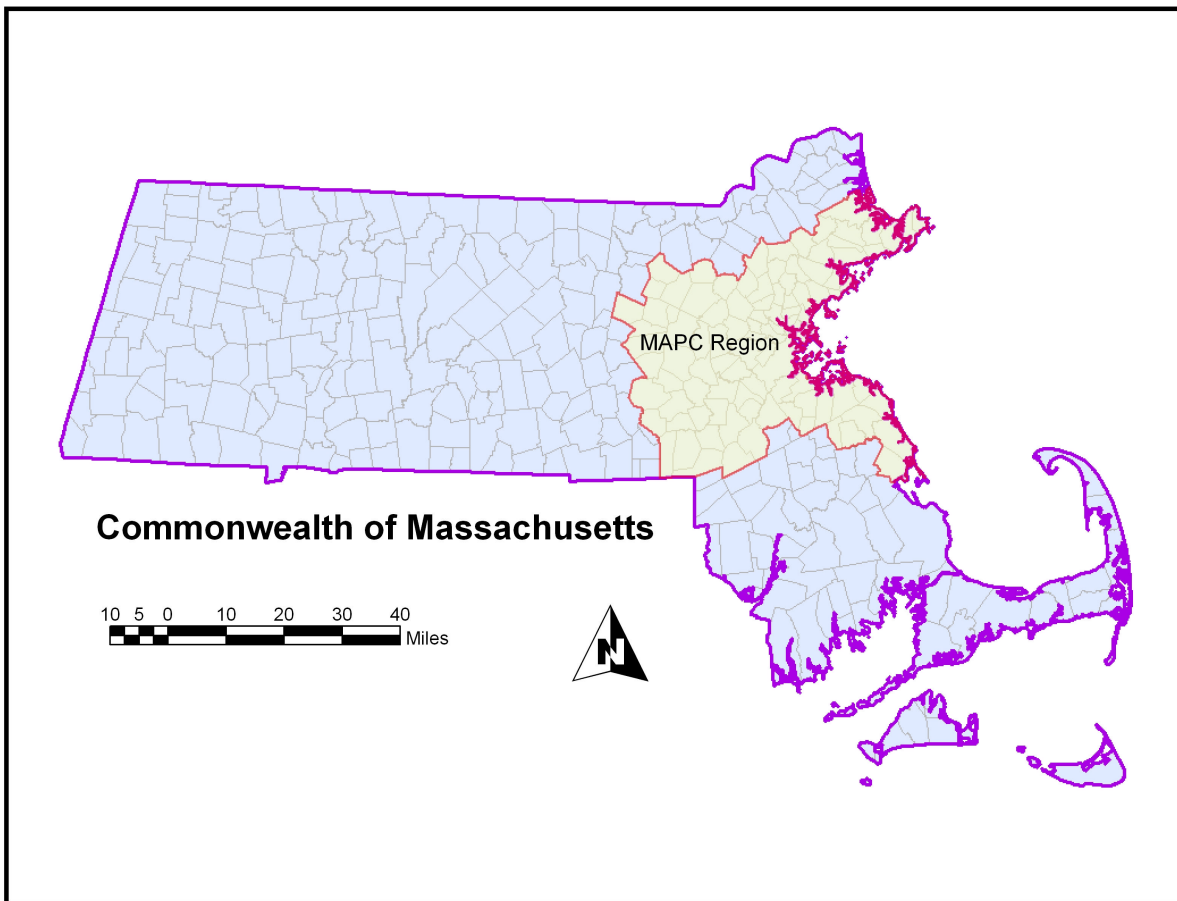


Figure 5.1. A GIS map of Massachusetts is overlaid with the Metropolitan Area Planning Council (MAPC) region, to limit selection of communities to those within the Greater Boston region.

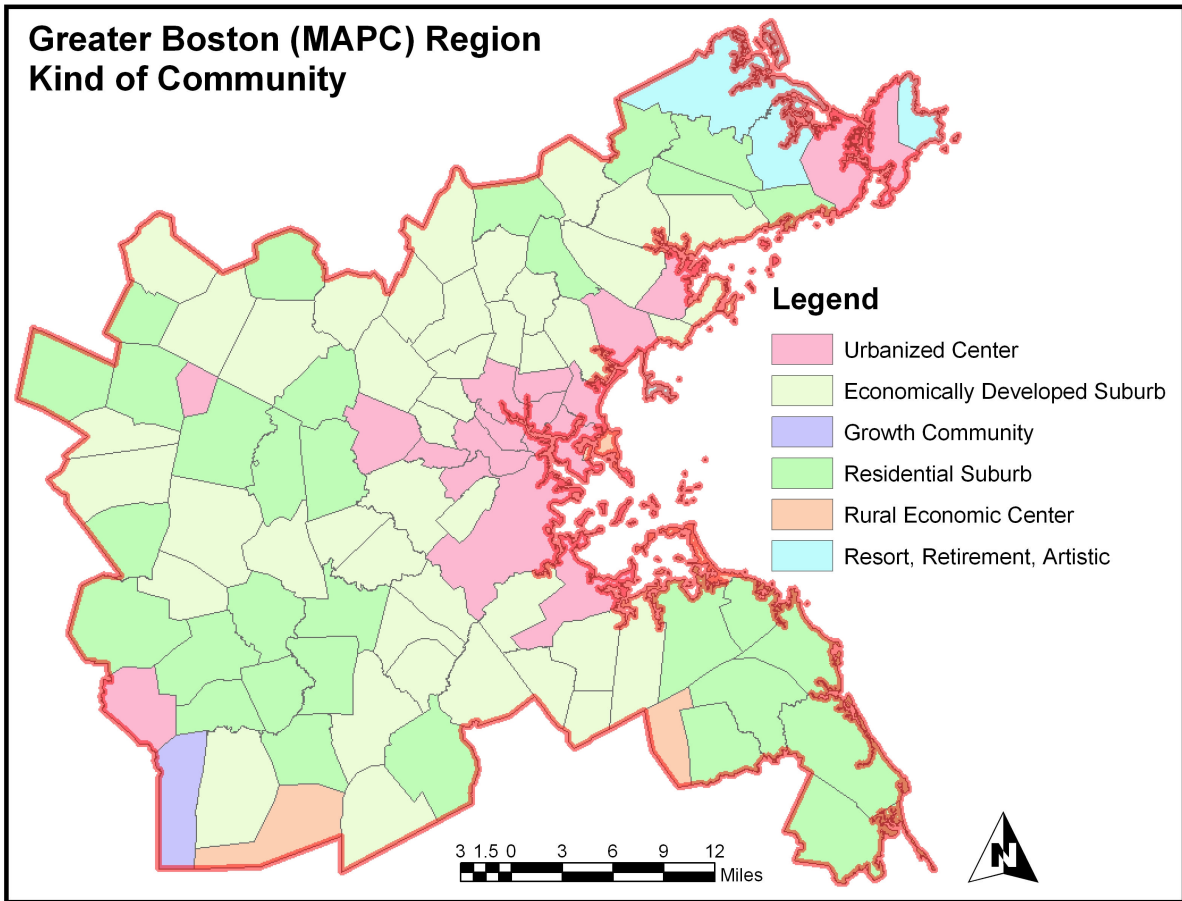


Figure 5.2. The 101 communities within MAPC are identified by “Kind of Community” (KOC) as determined by the Massachusetts Department of Revenue (DOR).

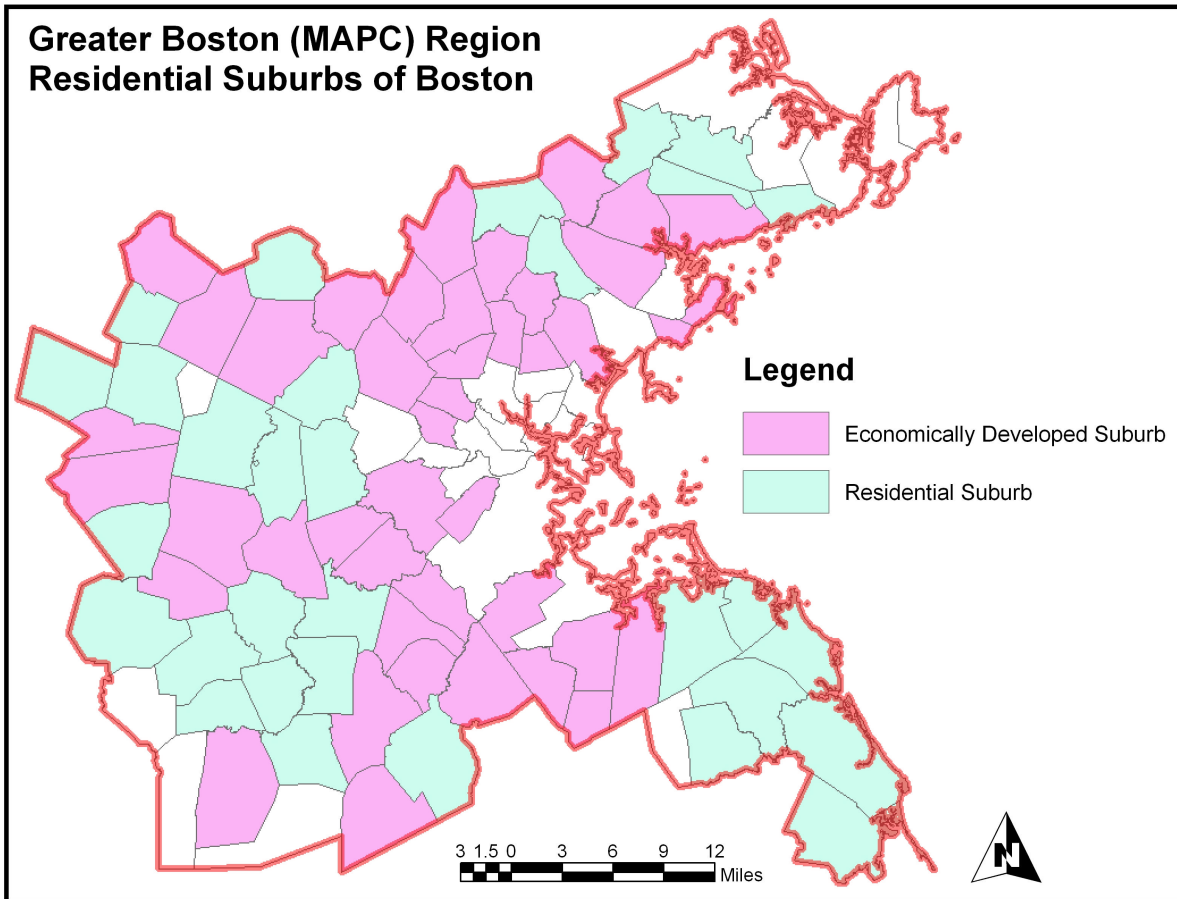


Figure 5.3. Seventy-three percent (73%) of MAPC Cities and Towns are identified as a “Residential Suburb” or “Economically Developed Suburb” by the Department of Revenue (KOCs) (suburb for the purposes of this research). To ensure that the case-study communities were representative of communities in the Greater Boston area those identified as a “Residential Suburb” or “Economically Developed Suburb” were therefore selected as a subset from the MAPC region.

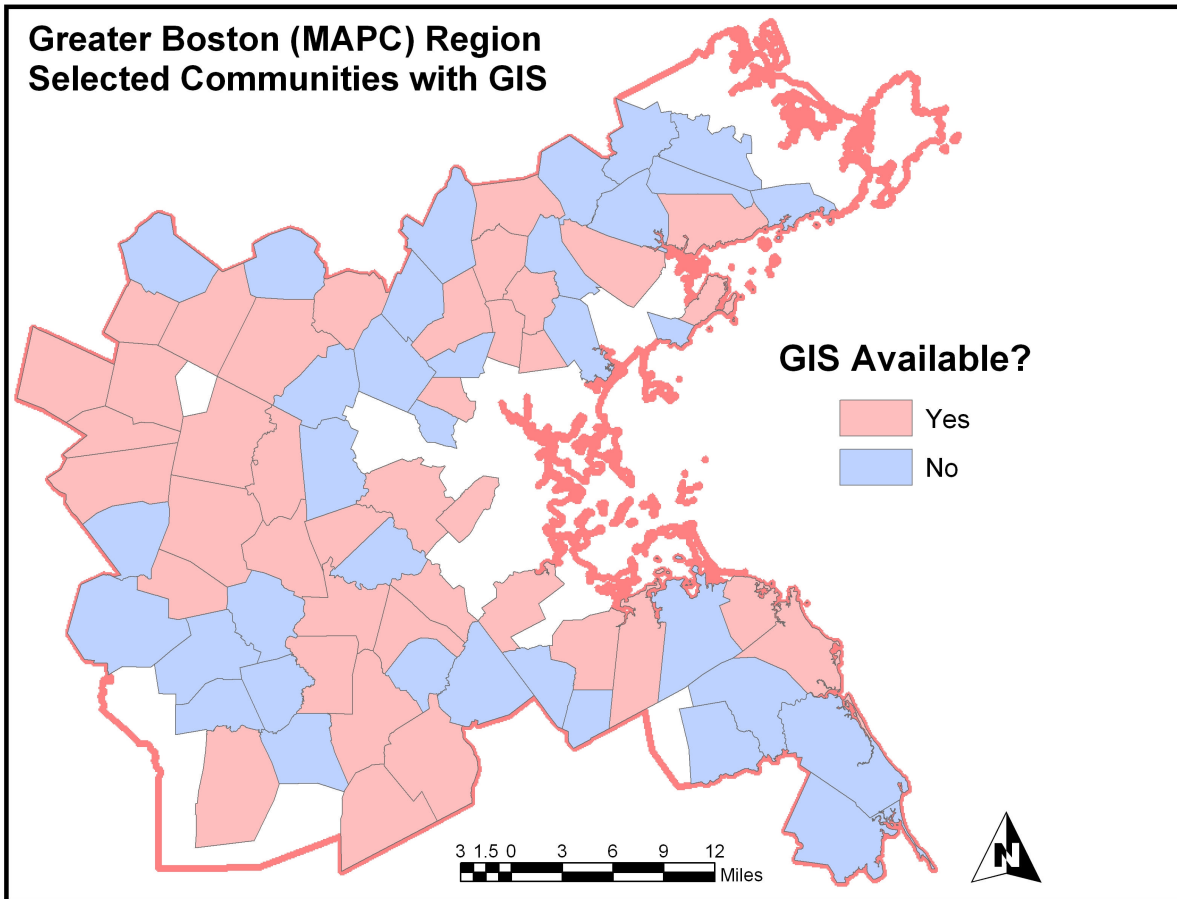


Figure 5.4. Communities with a parcel-based GIS system were then selected to allow for ease of community and development level analysis.

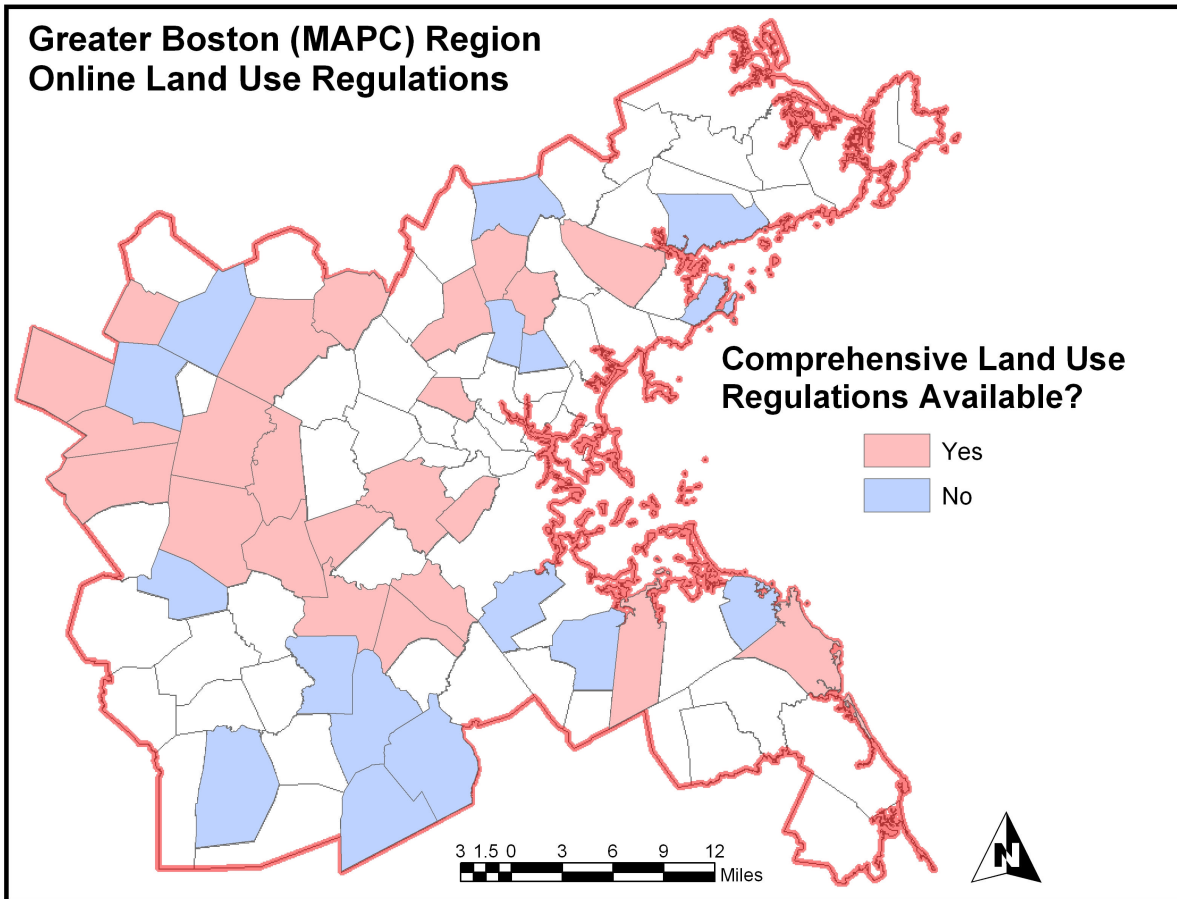


Figure 5.5. Communities with online land-use regulations (zoning and subdivision codes) were then selected as a subset which would allow for ease of regulatory analysis.

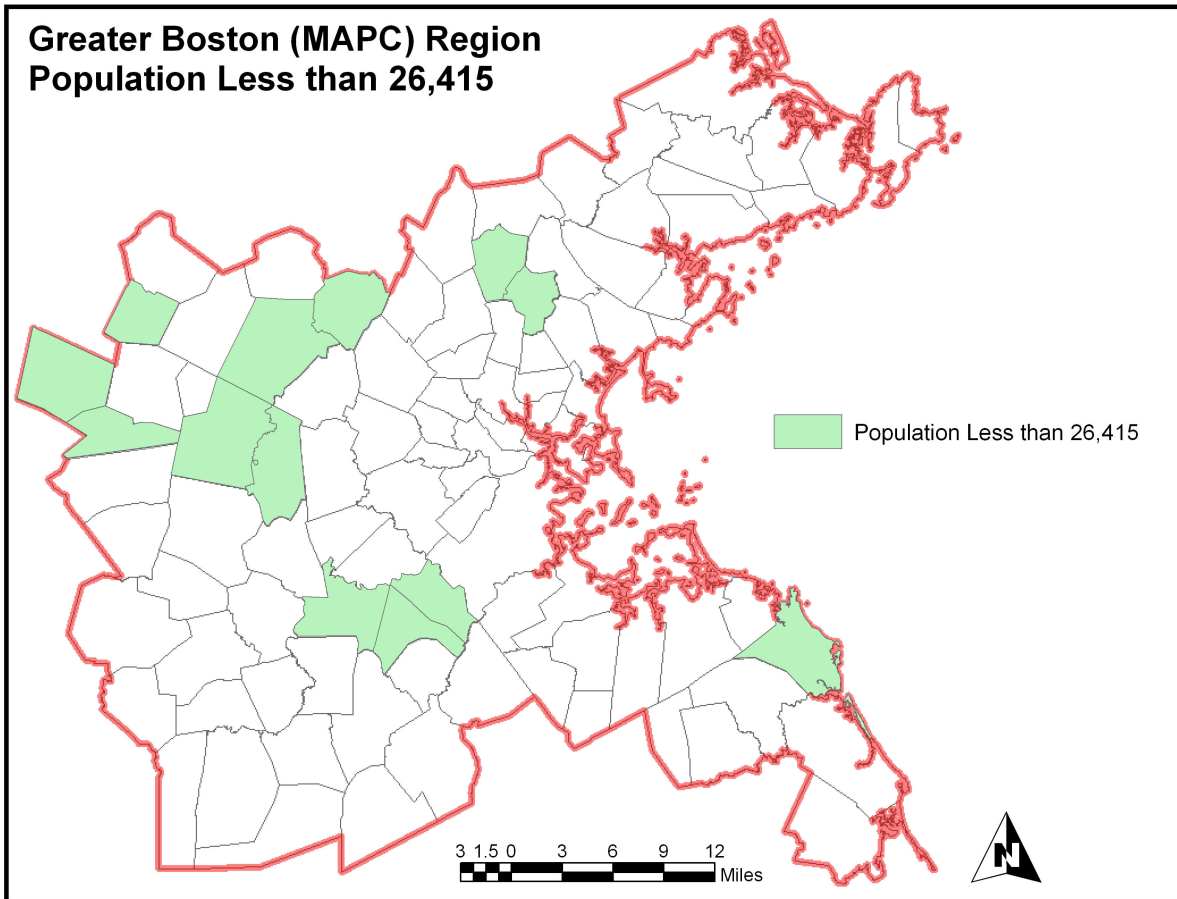


Figure 5.6. Seventy-five percent (75%) of MAPC's suburban communities have a population below 26,415 persons. To ensure that the case-study communities were representative of communities in the Greater Boston area, those with a population less than 26,415 were selected as a subset.

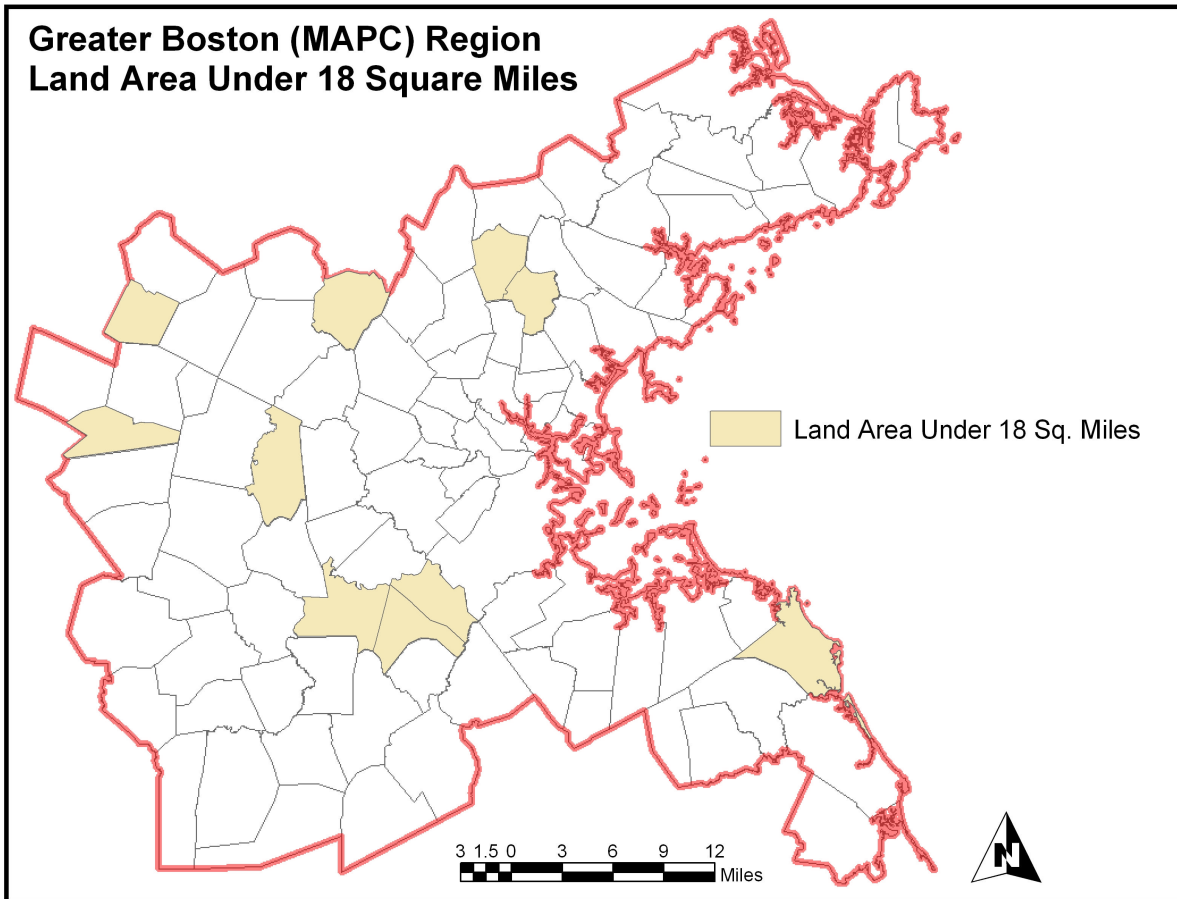


Figure 5.7. Seventy-five percent (75%) of MAPC’s suburban communities have a total land area of less than 18 square miles. To ensure that the case-study communities were representative of communities in the Greater Boston area, those with a total land area less than 18 square miles were selected as a subset.

Summary Buildout Analysis for Selected Communities

Community Buildout Summary – Boxborough, MA		
Total Land Area (Sq. Miles)		10.36
Total Population		4,937
Undeveloped Land Area (Sq. Ft.)		102,015,766
÷ Total Land Area (Sq. Ft.)		279,269,258
= Percent Land Area Undeveloped		37 %
(100% - Above =) Percent Land Area Built-Out		63 %
Zone AR (Agricultural / Residential)		68.9%
Percent Land Area Zoned for Low-Density By-Right Single Family Residential (Sprawl)		68.9 %



Community Buildout Summary – Reading, MA	
Total Land Area (Sq. Miles)	9.93
Total Population	23,680
Undeveloped Land Area (Sq. Ft.)	31,661,693
÷ Total Land Area (Sq. Ft.)	277,670,679
= Percent Land Area Undeveloped	12 %
(100% - Above =) Percent Land Area Built-Out	88 %
Zone S-20 (Residence Single Family)	41.0 %
+ Zone S-15 (Residence Single Family)	33.3 %
+ Zone S-40 (Residence Single Family)	19.6 %
Percent Land Area Zoned for Low-Density By-Right Single Family Residential (Sprawl)	93.9 %

Community Buildout Summary – Scituate, MA	
Total Land Area (Sq. Miles)	17.18
Total Population	18,152
Undeveloped Land Area (Sq. Ft.)	88,829,792
÷ Total Land Area (Sq. Ft.)	483,040,324
= Percent Land Area Undeveloped	18 %
(100% - Above =) Percent Land Area Built-Out	82 %
Zone A-1 (Residence)	36.95 %
+ Zone A-2 (Residence)	31.96 %
+ Zone A-3 (Residence)	12.81 %
Percent Land Area Zoned for Low-Density By-Right Single Family Residential (Sprawl)	93.9 %

Community Buildout Summary – Westwood, MA	
Total Land Area (Sq. Miles)	10.97
Total Population	14,181
Undeveloped Land Area (Sq. Ft.)	67,870,876
÷ Total Land Area (Sq. Ft.)	621,906,120
= Percent Land Area Undeveloped	11 %
(100% - Above =) Percent Land Area Built-Out	89 %
Zone Single Residence A (Single Residence)	3.3 %
+ Zone Single Residence B (Single Residence)	3.7 %
+ Zone Single Residence C (Single Residence)	48.7 %
+ Zone Single Residence D (Single Residence)	1.0 %
+ Zone Single Residence E (Single Residence)	23.2 %
Percent Land Area Zoned for Low-Density By-Right Single Family Residential (Sprawl)	79.9 %

Table 5.1. The MAPC Buildout Analysis for the remaining communities were then reviewed for two important criteria, percent of land area built-out, and percent of land area zoned for single family residential development. All ten communities exceeded the minimum required build-out threshold (50% of total land



area). However, after a detailed review of zoning codes for the above communities, only four provided a “pure” example for the high percentage of by-right large-lot single-family zoning. Those communities removed from the subset provided potential alternative uses (multifamily and mixed use) and development approaches (such as Planned Unit Developments) throughout the community. It should be noted that while such regulatory provisions provide an exception to the rule of mandated single-family sprawl, such provisions are sorely underutilized, and are not emblematic of the majority of contemporary residential development in the suburbs of Greater Boston. However, in the interest of a focused inquiry, these communities were removed from the subset regardless. Note that there appears to be a correlation between the percentages of land area zoned solely for by-right single-family residential development and the high build-out ratios.

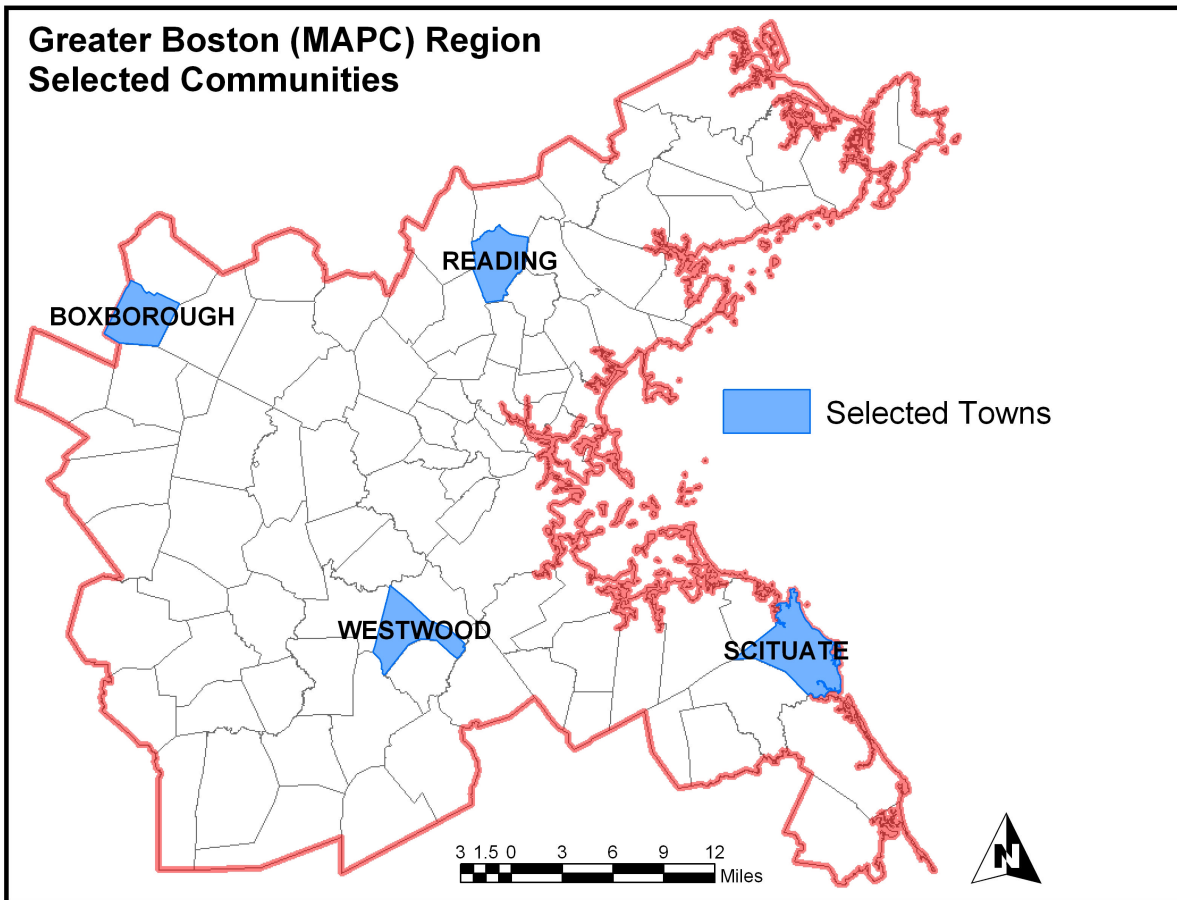


Figure 5.8. The four remaining communities (Boxborough, Reading, Scituate, and Westwood) were chosen using the above sequence of selection criteria. Each of these communities are within the Greater Boston region, are classified as “residential” by the state, have a population and land area similar to other communities in the region, and have an accessible GIS system and Zoning Code used during this analysis. 78% of MAPC Communities are classified as Towns. It is therefore appropriate that all the case studies used in this analysis are classified as Towns.

While the concepts of this research may be applied to many communities and developments within the Greater Boston region (and indeed the nation), the above selection criteria were utilized in order



to ensure that the developments and regulations used during this analysis are representative of contemporary land use regulations and infill developments within the Greater Boston region. This is important in order to guarantee that the selected communities and developments are representative of the MAPC suburbs, and that the findings and recommendations of this analysis are transferable thereto.



CHAPTER 6: CONVENTIONAL RESIDENTIAL DEVELOPMENTS

Residential developments were selected from each of the four mature suburbs representative of the Greater Boston region (as identified in Chapter 5). Brief interviews were conducted with town planners from each of these communities to ensure that the selected subdivisions were emblematic of by-right residential development within the community, and that each substantially adhered to existing codes. This is important, because each of the four developments serves as a projection of local land use regulations onto landscape development, and is indicative of residential buildout. The following subdivision plans are emblematic of by-right residential infill development in mature suburbs of Greater Boston.

GREEN ACRES SUBDIVISION, BOXBOROUGH, MA

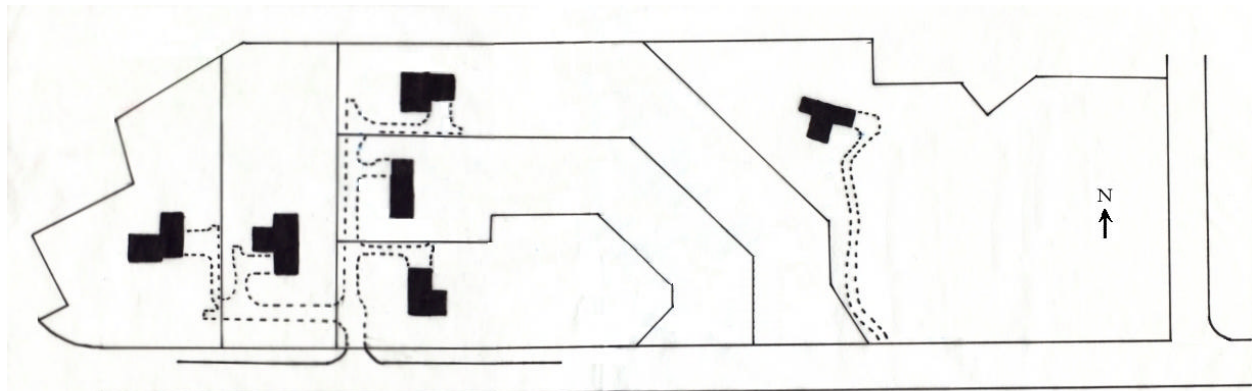


Figure 6.1: Approved Definitive Subdivision Plan for Green Acres, Boxborough, MA

The above subdivision plan “Green Acres” was approved in the Town of Boxborough in August, 1999. The subdivision consists of five lots on a total of 12.09 acres of land. There is no preserved open space, no shared common space, and all houses are single family homes of roughly the same size. The minimum lot size in this district (Agricultural-Residential) is an excessive 60,000 square feet.



CORNERSTONE ESTATES, SCITUATE, MA

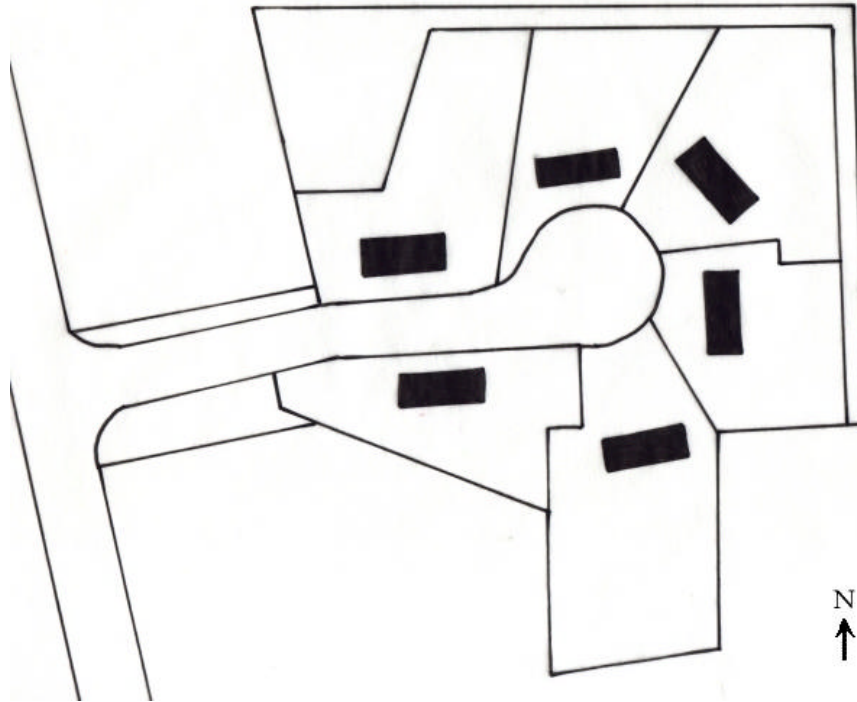


Figure 6.2: Approved Definitive Subdivision Plan for Cornerstone Estates, Scituate, MA

The above subdivision plan “Cornerstone Estates” is expected to be approved by the Town of Scituate in late spring, 2004. The subdivision consists of six lots on a total of 2.96 acres of land. There is minimal preserved open space (a thin buffer only), no shared common space, and all houses are single family homes of roughly the same size. The minimum lot size in this district (A2) is an excessive 20,000 square feet.



CONIFER LANE, WESTWOOD, MA

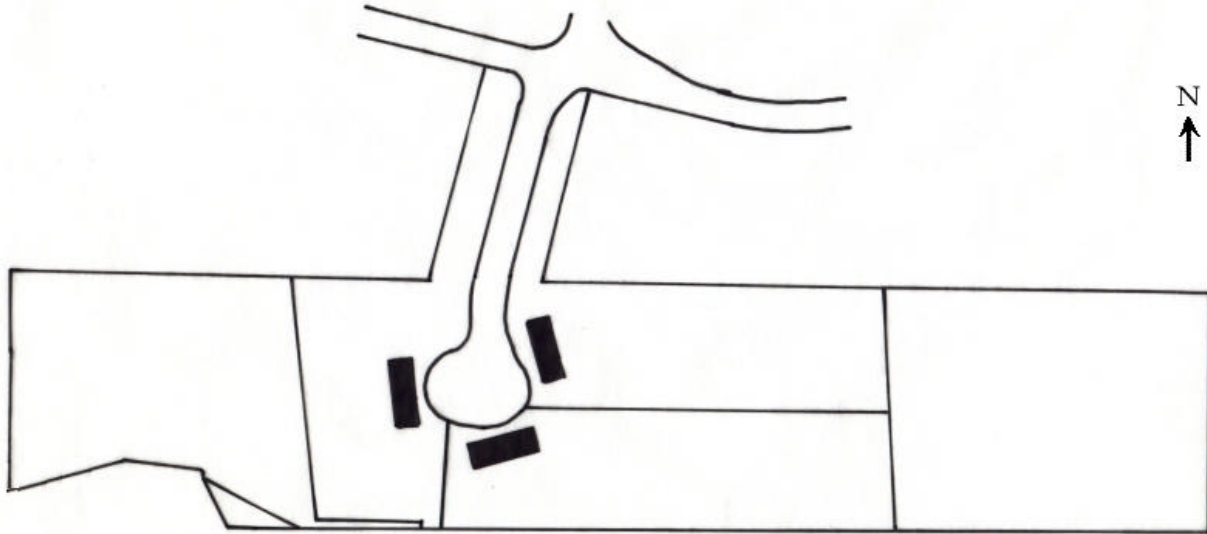


Figure 6.3: Approved Definitive Subdivision Plan for Conifer Lane, Westwood, MA

The above subdivision plan “Green Acres” was approved in the Town of Westwood in September, 1998. The subdivision consists of three lots on a total of 10.00 acres of land. There is no permanently preserved open space (though one lot was approved as a non-buildable lot), no shared common space, and all houses are single family homes of roughly the same size. The minimum lot size in this district (Single Family E) is an excessive 80,000 square feet.



CARRIAGE ESTATES/CORY LANE SUBDIVISION, READING, MA

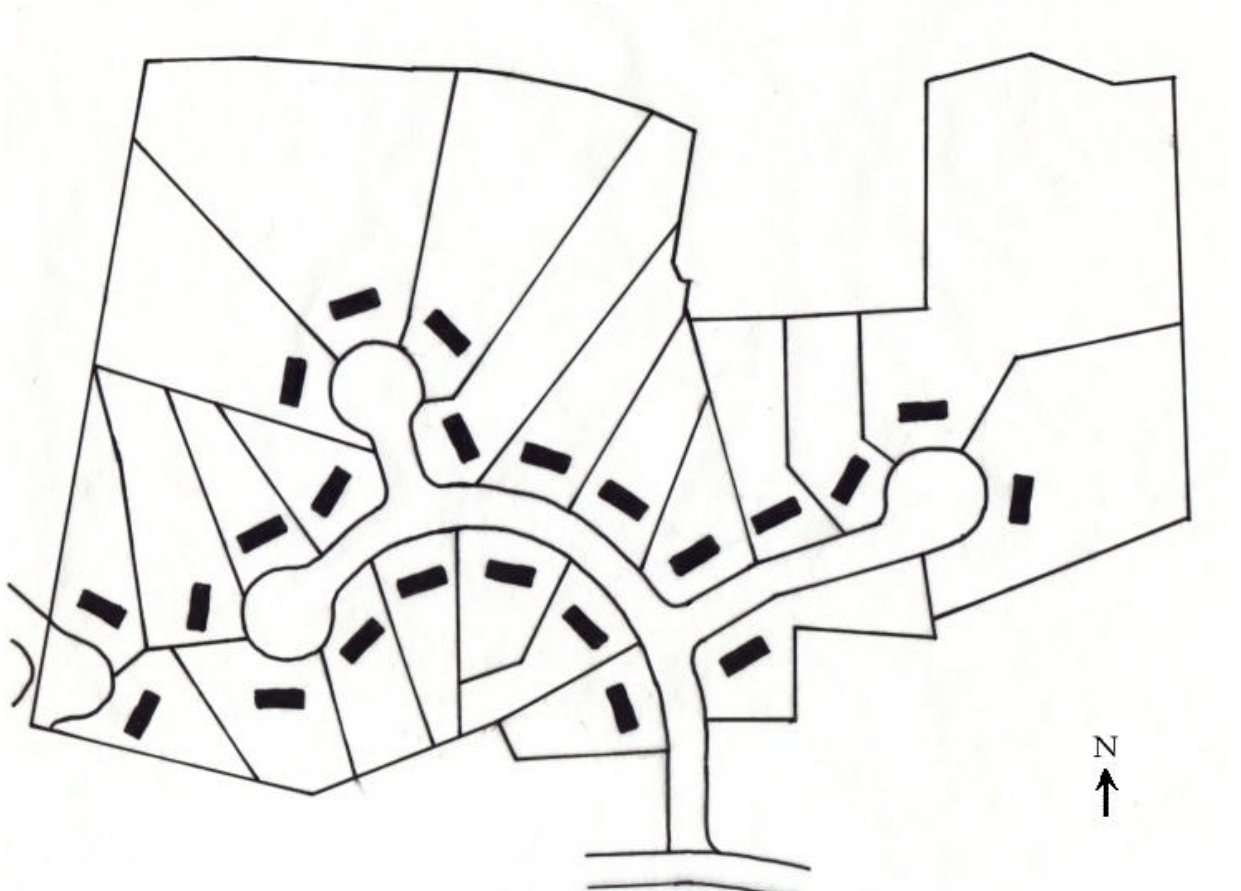


Figure 6.4: Approved Definitive Subdivision Plan for Carriage Estates & Cory Lane, Reading, MA

The above subdivision plans “Carriage Estates” and “Cory Lane” (related) were approved in the Town of Reading in November 1991 and November, 1995, respectively. The subdivision consists of twenty-three lots on a total of 12.09 acres of land. There is no preserved open space, no shared common space, and all houses are single family homes of roughly the same size. The minimum lot size in this district (S-20) is an excessive 20,000 square feet.



CHAPTER 7: POST-MORTEM/NEW URBANIST ALTERNATIVES

Two conventional subdivision plans¹⁸ were selected, from the four identified in Chapter 6, in order to illustrate the possibilities viable through alternative residential developments. These alternative plans were prepared based on the guidelines established in the Model Hamlet Development Bylaw (Appendix B).¹⁹ An evaluation of the by-right and alternative development plans is then provided based on the key principles of New Urbanism in this analysis, identified in Chapter 3.

ALTERNATIVE (HAMLET) GREEN ACRES SUBDIVISION

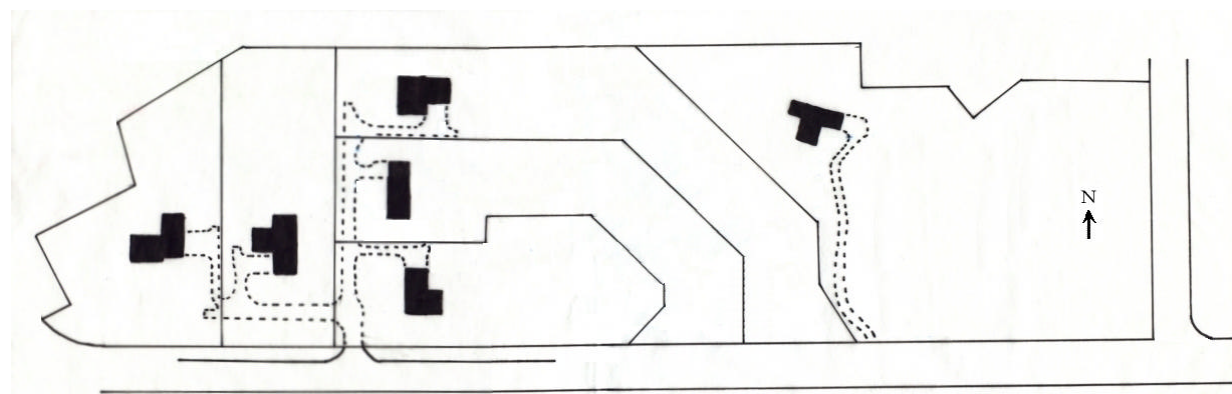


Figure 7.1: Approved Definitive Subdivision Plan for Green Acres, Boxborough, MA

In order to demonstrate the viability and desirability of integrating New Urbanist principles into existing land use regulations in cities and towns of the Commonwealth, a contrast is made between the approved subdivision development (shown above) and alternative development (below).

¹⁸ Only two plans were chosen for design and analysis for several reasons, including:

- Size of the Development (to illustrate the full potential of alternative development)
- Prior Approval and Construction (to illustrate the comparison between by-right compliance with conventional subdivision regulations as compared with the alternative)
- Available GIS Information (to allow for better site design in consideration of surrounding development, topographical and environmental restrictions)
- Available Time for the analysis

¹⁹ Model Hamlet Development Bylaw developed in accordance with the key New Urbanist Principles addressed in this research: compact cluster development and provision for common space.

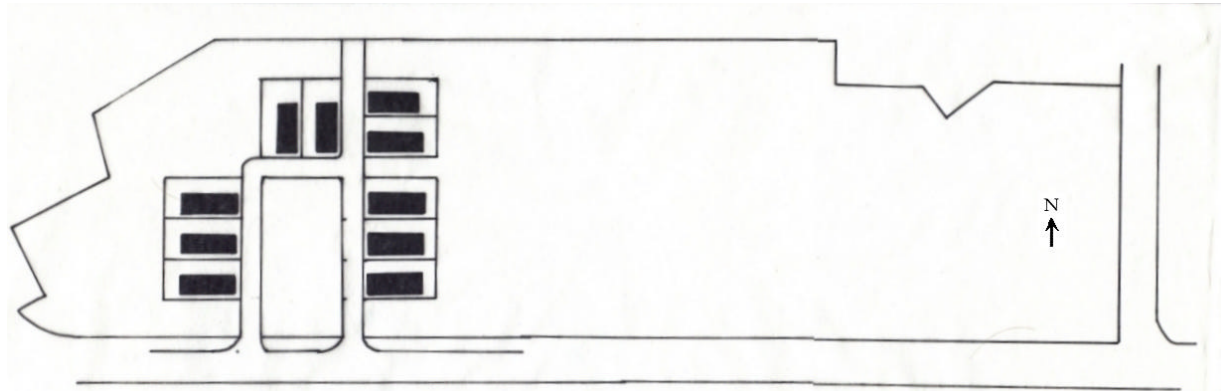


Figure 7.2. A Post-Mortem Alternative to the Green Acres Subdivision developed in accordance with New Urbanist principles, under guidelines established in the model Hamlet Development Bylaw.

The above subdivision is an alternative New Urbanist cluster development plan for the Green Acres Subdivision developed in accordance with the New Urbanist principles of compact development and common space, and under the guidelines of the Model Hamlet Development Bylaw in Appendix B. Compare this alternative plan with that approved by the Boxborough Planning Board in 1999. The following table summarizes the comparison of lot size, common space, and preserved open space in the two subdivisions (conventional and alternative):

Evaluation Criteria	Approved Conventional Subdivision	Alternative Hamlet Cluster Subdivision
Preserved Open Space	0%	75%
Common Space	0%	10%
Total Number of Lots	23	24
Lot Size Requirements (for private lots)	Minimum 60,000 sq. ft.	Maximum 10,000 sq. ft.
Street Connections	1 full connection	2 full connections



ALTERNATIVE (HAMLET) CARRIAGE ESTATES/CORY LANE SUBDIVISION

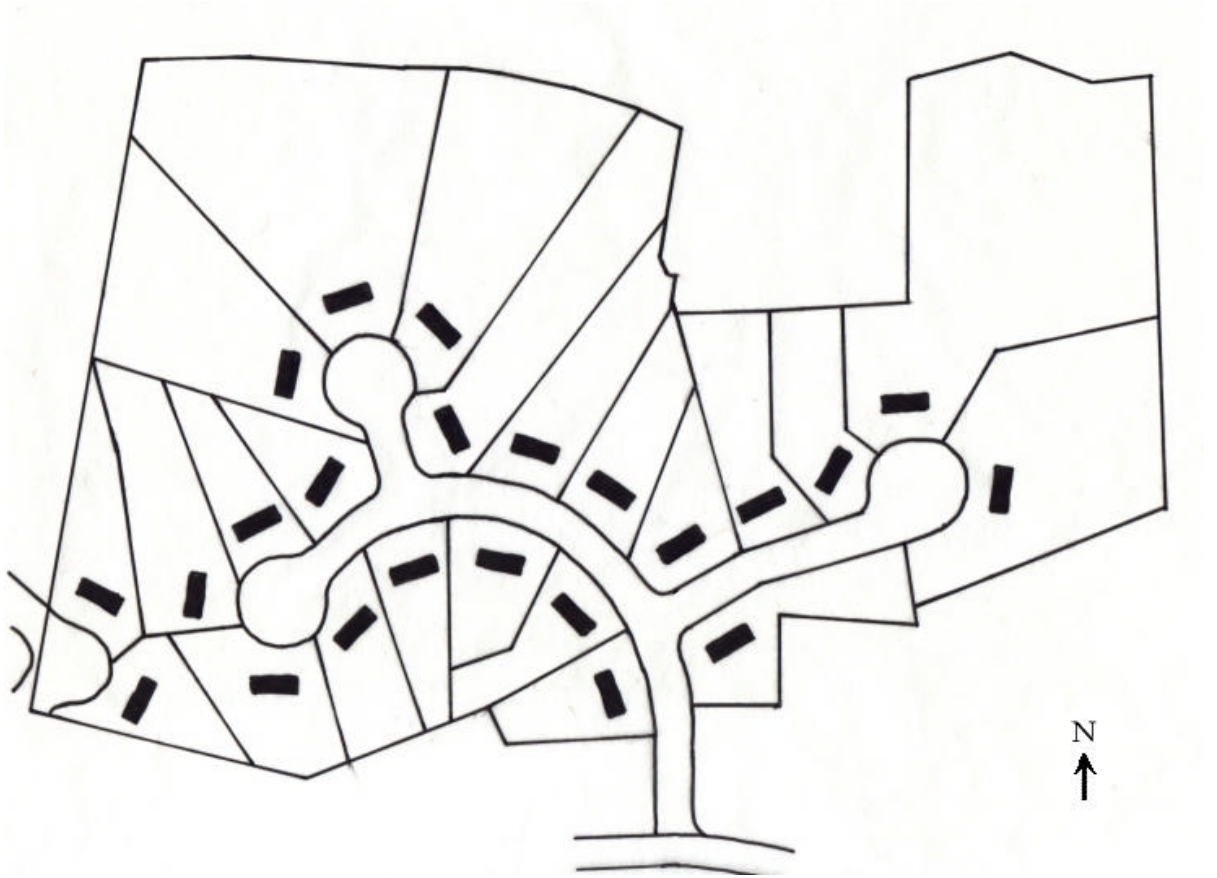


Figure 7.3: Approved Definitive Subdivision Plan for Carriage Estates & Cory Lane, Reading, MA

In order to demonstrate the viability and desirability of integrating New Urbanist principles into existing land use regulations in cities and towns of the Commonwealth, a contrast is made between the approved subdivision development (shown above) and alternative development (below).

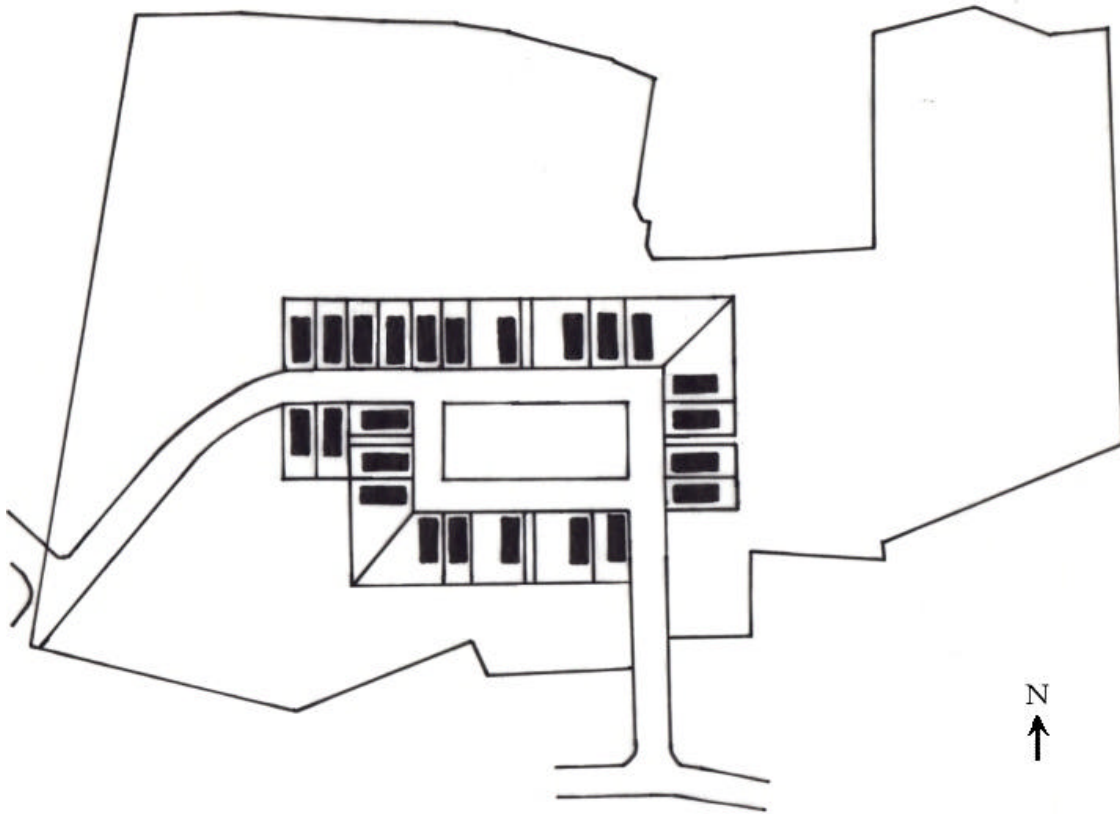


Figure 7.4. A Post-Mortem Alternative to the Carriage Estates/Cory Lane Subdivision developed in accordance with New Urbanist principles, under guidelines established in the model Hamlet Development Bylaw.

The above subdivision is an alternative New Urbanist cluster development plan for the Carriage Estates/Cory Lane Subdivision developed in accordance with the New Urbanist principles of compact development and common space, and under the guidelines of the Model Hamlet Development Bylaw in Appendix B. Compare this alternative plan with that approved by the Reading Planning Board in 1995. The following table summarizes the comparison of lot size, common space, and preserved open space in the two subdivisions (conventional and alternative):

Evaluation Criteria	Approved Conventional Subdivision	Alternative Hamlet Cluster Subdivision
Preserved Open Space	0%	75%
Common Space	0%	10%
Total Number of Lots	23	24
Lot Sizes Requirements (for private lots)	Minimum 20,000 sq. ft.	Maximum 10,000 sq. ft.
Street Connections	1 full connection	2 full connections



EVALUATION OF ALTERNATIVE VS. CONVENTIONAL

Evaluation of the by-right (conventional) and alternative (New Urbanist) development plans illustrates that implementation of New Urbanist principles in local land use regulations is not only viable, but has the following benefits not addressed through conventional zoning and subdivision regulations in these communities:

1. Significant preservation of greenways and open space
2. Reduced infrastructure costs
3. Creation of neighborhood common spaces
4. Private lots and dwellings defining and supporting the public realm²⁰
5. Higher density development (where desired) as compared with conventional development

The alternative Hamlet development plans, designed in accordance with the Hamlet Development Bylaw in Appendix B, provides several major benefits over the conventional subdivisions since approved and constructed. The clustering of dwelling units around a common open space on reduced lot sizes affords protection of 75% of the open space in the subdivision for sustainability of the environment and the enjoyment of future generations. Common septic fields (if necessary) may be included in this land area. Providing common open spaces and focusing the dwelling units around such spaces increases opportunity for social interaction and a sense of community. The development is able to support the same amount of dwellings (or greater), while reducing infrastructure lengths (and therefore costs). Lastly, the alternative Hamlet development provides two full street connections to adjacent roadways, and expected subdivisions. The conventional subdivision, by comparison, provides only one full connection to an arterial road, thereby ensuring congestion of such roadways.

Further additions and amendments to the model bylaw may be developed to address additional New Urbanist principles such as minimal architectural standards (such as front porches, detailing, and the placement of garage doors), affordable housing requirements (percentage of affordable units created), pedestrian connectivity in the hamlet site plan (pathways, sidewalks, and other amenities), as well as other site design standards (traffic calming and landscaping).

²⁰ Lot sizes are standardized for ease of site and architectural design, though many alternative arrangements are possible.



CHAPTER 8: OBSTACLES TO IMPLEMENTING NEW URBANISM

The previous chapter illustrates the viability of New Urbanist residential infill with regard to design issues only. The following sections address the viability of New Urbanist residential infill under related non-design issues such as comprehensive planning, state and local land use regulations, private property rights, and the market viability of New Urbanism.

Absence of True Regional Planning

While state and regional failures to address the problems of sprawl are beyond the scope of this thesis, it is worth noting herein that a complete lack of meaningful regional planning allows local communities to continue with irresponsible (i.e. unsustainable) land use policies (zoning and subdivision regulations accordingly). Most notable is the excessive devotion of local land areas zoned for large-lot single-family development (see Table 2.2). While recent attempts to pass the Massachusetts Land Use Reform Act (MLURA) may address the antiquated elements of state land use statutes, the act also does not address the lack of authority held by regional planning agencies (and the attendant lack of meaningful regional planning and land use coordination). Further, MLURA does not address the need to establish smart-growth regulations at the local level. MLURA simply allows communities greater **freedom** in adopting alternative provisions in land use regulations. While a few progressive communities may alter their local zoning and subdivision regulations to allow for compact development, preservation of open space, greater density, mixed use, and a variety of housing, it is irresponsible to assume that these few communities alone can respond to our Commonwealth's regional needs. As growth management and affordable housing issues cross municipal borders, the state must take a leading role in bringing meaningful changes to land use regulations which mandate smart-growth instead of sprawl.

Americans have a historical passion for local government and limited state intervention in local decision-making. The problems associated with sprawl have been seriously exacerbated by the fragmentation of land use regulations across arbitrary municipal boundaries. Land use regulations and growth management remains uncoordinated at the state and regional level in Massachusetts. If serious and appropriate correction is to be made to development patterns in Massachusetts, the state (through its regional planning agencies) must intervene for the "public interest"... We can no longer live by the call of "private property rights" and absolute "home rule" to the detriment of our neighbors, surrounding communities, and the rights and potential of future generations. Despite the failure of local governments to address regional growth management issues in a piecemeal and self-interested manner, our citizens are unwilling to return the responsibility of oversight to the state. While statewide planning and land use regulation is politically unsavory, it is the logical and responsible solution to regional growth-management pressures and conflicts. Regional planning agencies like the Metropolitan Area Planning Council (MAPC) must be given more authority and oversight over local land use regulations to ensure that compact development patterns (New Urbanism) replace today's scattered development patterns (sprawl).



Antiquated State Land Use Statutes

“The achievement of long-term environmental objectives and economic goals will require revision of antiquated regulations and provision of incentives to stimulate development that is consistent with smart-growth principles” (ULI, 11)

An abundance of antiquities, idiosyncrasies and contradictions in state land use statutes limit the extent to which local communities can implement the concepts of New Urbanism in their land use regulations. For instance, while case law shows that land use regulation may extend as far as a demonstrated and justifiable public interest, the Massachusetts Subdivision Control Law (Section 81U) does not allow cities and towns to require an adequate proportion of preserved open space or common spaces in new residential developments. While private property rights are protected (i.e. the right to develop one’s land), there is insufficient protection of documented public interests (i.e. concentration of development in appropriate areas and the permanent protection of greenways and common civic spaces through public ownership). We must ask therefore, if private land-owners are allowed to develop their lands, should they be allowed to do so with disregard for the existing and future needs of residents? Or should mitigation measures and development requirements accurately and completely reflect the public interests of communities? It is time for the pendulum to swing from the side of private property rights advocates to interests in the public good. The state zoning act and subdivision control law should be amended to allow cities and towns to require the permanent protection of greenways and common spaces as mitigation for the clear impacts of new residential development and the logical needs of future residents.

Additional recommended changes to Massachusetts land use statutes are provisions for comprehensive planning, urban growth boundaries, planned unit development, transit oriented development, mixed use, rural lot sizes and densities (20+ acres per dwelling unit), and, in accordance with this research, **mandatory cluster development** (where conventional **sprawl** is allowed **only** by “special exception”).

Excessive Mandatory Lot Sizes & Setbacks

“Developers, according to a recent survey, find land use regulations to be the greatest obstacle to alternative forms of development.” (ULI, 11) A review of the applicable zoning and subdivision codes for each of the communities and developments discussed in Chapters 6 and 7 illuminates four key obstacles to the creation of New Urbanist residential infill:

1. Excessive lot size requirements
2. Excessive setback requirements
3. Cluster and multifamily development allowed only by Special Permit (whereas conventional large-lot single-family sprawl is allowed by-right)
4. Lack of provision for common space & greenways



There are various tools to allow alternative development patterns under the existing land use regulatory structure. These include cluster zoning, planned unit developments, and traditional neighborhood development bylaws. An example Hamlet Cluster Development Bylaw is provided in Appendix B, and illustrates the means by which the key principles of New Urbanism can be required under by-right Hamlet cluster residential development.²¹ Unfortunately, flexible development regulations are underutilized across the Commonwealth or have restrictive provisions (such as required special permits) rendering them undesirable or unmarketable.

“Suburban large-lot residential development ...is both ecologically and financially inefficient.” (ULI, 16) Local officials in Massachusetts often adopt “large-lot” zoning (of 1-3 acres) in order to preserve open space and curb the impacts of population growth.²² “Requiring really large lots of say 25 or 50 acres can maintain open space and protect environmental resources. But requiring smaller “large” lots of two to ten acres encourages development that actually exacerbates the problems associated with rapid growth, including traffic congestion, high infrastructure costs, and loss of open space. Development at such densities does little to maintain the ecological value of natural areas and can carve up the countryside rather than protect it.” (ULI, 16)

“Rather than adopt large-lot zoning to preserve a fragmented system of open space, communities should undertake to plan more comprehensively for growth and conservation on the urban fringe. Planning for growth and conservation (and adopting regulations that support the planning) will help achieve a mix of land uses and densities that can have many advantages over unplanned growth and a uniformly low-density development pattern, including the more efficient provision of infrastructure, the more effective protection of natural resources and natural systems, the preservation of important open space, the establishment of a sense of community, and the creation of sustainable communities that increase value over time.” (ULI, 16)

The most arbitrary and restrictive requirements of local zoning codes preventing New Urbanist forms of residential development are the excessive lot sizes and setbacks mandated under zoning and subdivision regulations. New Urbanism shifts concern over private lot size to the relationship of private dwellings to the **whole** neighborhood. Given this priority, lot sizes for individual dwellings are reduced to a more appropriate human scale, with reduced dimensions, allowing for proximity to other dwelling units and the preservation of collective open space. Model homes are being developed which illustrate the efficiency and market viability of New Urbanist dwellings and

²¹ Developed with elements from Randall Arendt’s “Growing Greener” model zoning and subdivision bylaws, and MAPC’s “Conservation Subdivision Design” model bylaw. (Arendt) & (MAPC) respectively.

²² Personal experience and research into local land use regulations as a municipal planner in Massachusetts and member of the “massplanners” listserv. Such a zoning amendment was recently adopted by the City Council of the City of Peabody, despite objection from the professional planning staff and the Peabody Planning Board.



lot configurations. The Orlando House website states, “The City of Orlando has been overwhelmed with the interest that the project has received from the construction industry.”²³

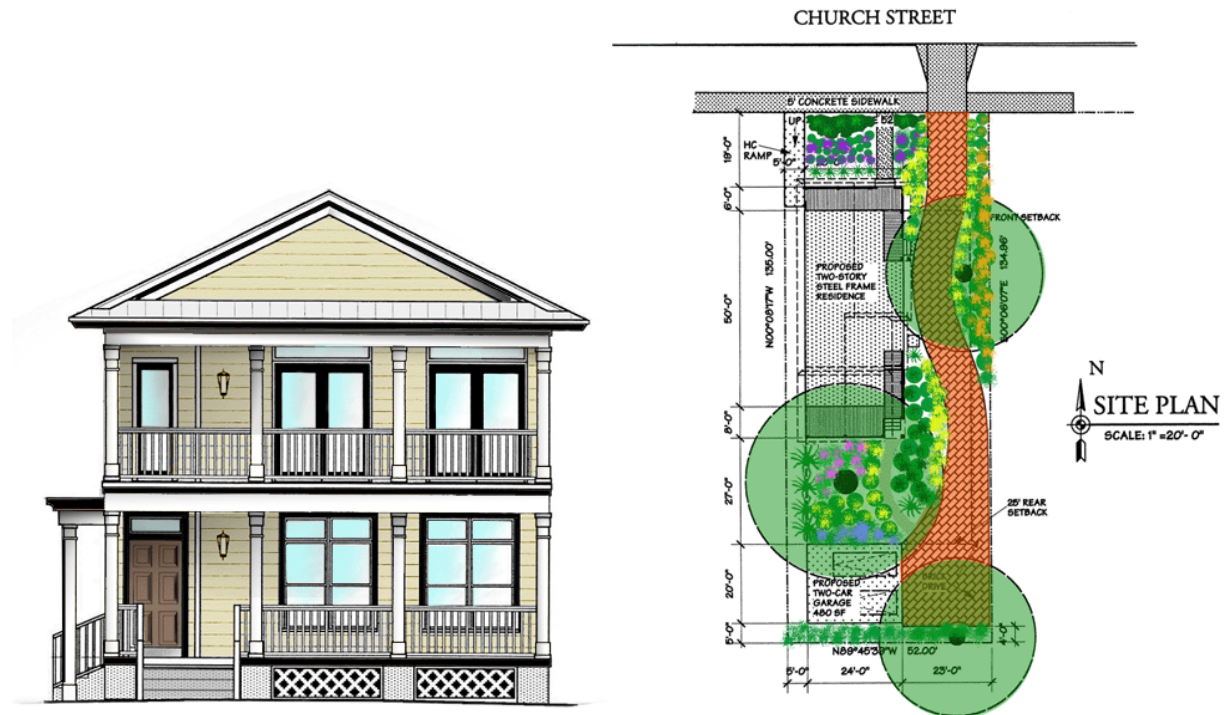


Figure 8.1. The Orlando House in Orlando, Florida serves as a model, not only for the Green Building community, but for New Urbanist residential dwellings, which can be sited on smaller lots, oriented closely to public spaces and the streetscape.

²³ Orlando House: Florida’s Future. Plans and information available on the web at www.cityoforlando.net/planning/orlandohouse



PLAN W503

First Floor: 781 square feet
Second Floor: 1,034 square feet
Total: 1,815 square feet

Bedrooms: 3
Bathrooms: 2½

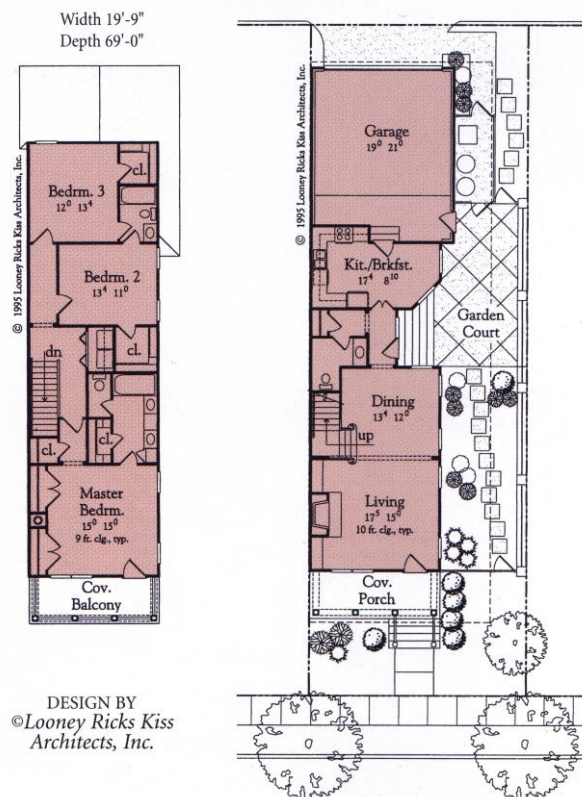


Figure 8.2. Numerous houses like the one above, designed for compact New Urbanist residential developments can be found in books like, "Traditional Neighborhood Home Plans: 170 Designs for Living in Villages & Towns."

Opposition from Private Property Rights Advocates

New Urbanist regulations, like all land-use regulations, must satisfy the requirements of substantive due process. Since they are exercises of the police power, land use regulations must advance legitimate government interests that serve the public health, safety, morals, and general welfare. Such regulations have increasingly been upheld, with many cases citing the U.S. Supreme Court's pronouncement in *Berman v. Parker*, 348 U.S. 26 33 (1954):

"The concept of the public welfare is broad and inclusive. The values it represents are spiritual as well as physical, aesthetic as well as monetary. It is within the power



of the legislature to determine that the community should be beautiful as well as healthy, spacious as well as clean, well balanced as well as carefully patrolled.”

The Supreme Court's decision in *The Members of City Council of the City of Los Angeles v. Taxpayers for Vincent*, 466 U.S. 784 (1984), cemented the Court's view that aesthetics are a proper focus of governmental regulation, which could arguably include design of the public realm. One way to avoid such questions is to focus on New Urbanist regulations as a tool to shape **public space**. After all, one could argue, government has a duty to promote and maintain a healthy and safe public realm. By this logic, mitigation for the impacts of development and the needs created by new residents are not an excessive burden on the development of residentially zoned property. Minimum percentages of permanently preserved open space and common spaces would seem to be an obvious and justifiable “linkage.”

Development Costs & Market Viability

Critics argue that New Urbanist forms of residential development are more costly than conventional development patterns. While numerous studies have factually and statistically supported the opposite conclusion, I shall attempt to address herein the salient points.

Advocates of New Urbanism counter that such high costs are simply due to the high demand for homes in these neo-traditional communities, and the comparatively low supply available. Studies have shown that traditional development patterns offer numerous cost-benefit advantages over contemporary sprawl development. In a working paper entitled, “Land, Infrastructure, Housing Costs and Fiscal Impacts Associated with Growth,” researchers Robert W. Burchell and David Listokin state:

“Land developed at higher densities, closer in to existing development, and drawing upon already developed infrastructure or extensions ... can provide significant capital and cost savings over ... sprawl type development.”

The authors analyze four key areas of development impact, and reported findings as follows²⁴:

1. Land Consumption: Traditional developments consume approximately 40 percent as much land overall, 60 percent of agricultural acreage, and 17 percent of the level of development on frail lands, as found in conventional sprawl.
2. Infrastructure Requirements: Traditional developments is only 75% as expensive with respect to roads, 95% as expensive with respect to schools, 85% as expensive with respect to utilities, and at parity with other infrastructure costs, as found in conventional sprawl. “Compact, infill, and higher density development is more efficient to serve than scattered, linear, and lower density sprawl.” (Burchell, 4)

²⁴ Summary list substituting the term “traditional development” for “planned development,” and adapted from Lincoln Institute of Land Policy working paper entitled “Land, Infrastructure, Housing Costs and Fiscal Impacts Associated with Growth: The literature on the Impacts of Sprawl verses Managed Growth.”



3. Housing Costs: Traditional developments do not increase housing costs over conventional sprawl, and may afford a small (i.e. less than 6 percent) savings.
4. Fiscal Impacts: Traditional developments is less costly than conventional sprawl on an annual basis to both municipality and school districts (by about 2 percent), and requires less capital expenditure (about 3 percent) for school districts.

The report goes on to note that “ongoing operating costs for roads and infrastructure are reduced, and “by preserving land in the process of development, there is less need to acquire land for parks and recreation.”

Recent studies have shown that homes in New Urbanist neighborhoods are in high demand in comparison to those found in contemporary sprawl. In a research paper entitled, “New Urbanism and Housing Values: A Disaggregate Assessment,” researchers Yan Song and Gerrit-Jan Knaap report:

“We find that our measures of urban form capture meaningful differences in the characters of urban neighborhoods that could well have direct impacts on the utility of urban residents. Further we find that such differences are capitalized into residential property values. The results imply that ... the design features of new urbanism provide benefits for which urban residents are willing to pay.”

Their research goes on to state:

“Recent market research shows that there is a demand for denser, more walkable residential environments in the United States as a whole, and the growing demand is a result of changing demographics, changing tastes, and the closing of the suburban frontier.”

Published studies have examined the premiums captured by new Urbanist developments. These studies compared the prices of single-family homes in New Urbanist and suburban neighborhoods and found consumers willing to pay a premium for houses in a New Urbanist neighborhood. (Eppli & Tu) “What is more, we find that this premium more than compensates for the severe price discount for the small size of New Urbanist lots.” This is an important finding, as the compact form of New Urbanism requires smaller than normal lot sizes to allow for close proximity between dwelling units.

In a publication entitled, “Environment and Development: Myth and Fact,” the Urban Land Institute (ULI) debunks the myth that “development that protects and enhances the environment adds little market value.” The ULI reports:

“Projects that incorporate green features often achieve premium prices and faster absorption rates than conventional developments... In fact, the demand for environmentally sensitive projects is strong enough to have outrun supply ... Nearly



70 percent of developers from around the country who were surveyed recently say that the supply of alternative developments – for example conservation communities, higher-density development, and pedestrian- and transit-oriented developments – is inadequate... Developers think the market for alternative development exceeds 50 percent in some regions of the country. (ULI, 8)

Market forces support New Urbanist residential developments. While critics argue that Seaside's inflated property values prohibit a mix of incomes, the design itself supports a mix of uses. It is the lack of similar alternative developments **elsewhere** that has made Seaside such a popular place to live - in short supply and high demand - and therefore too expensive for most. The solution is not to stop building places like Seaside, but rather to build many more with New Urbanist design considerations and amenities.



CHAPTER 9: CONCLUSION: FINDINGS & RECOMMENDATIONS

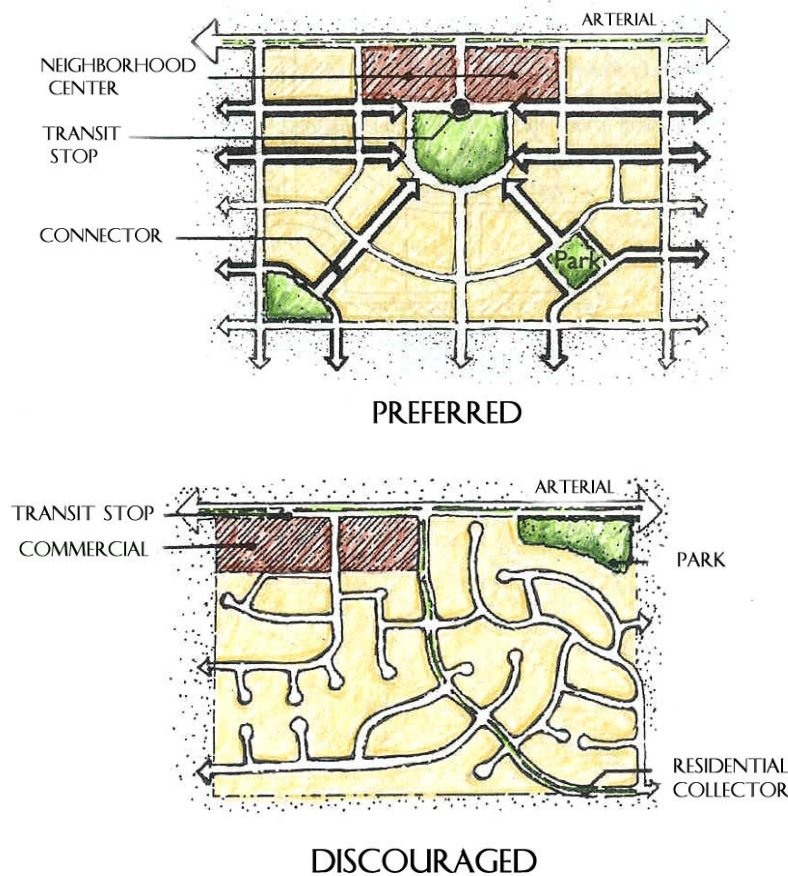


Figure 9.1: “Sprawl is out - New Urbanism is in.”

Commonwealth ... Common Wealth: “Home from Nowhere”

The alternative New Urbanist form of development, which “favors the quality of its space over the quantity,” is a return to traditional New England (and indeed *human*) development values. (Susanka, 3) Residential developments of the future will be a form of *evolution*, not revolution, built in accordance with New Urbanist (traditional New England) development principles. Even small changes, like compact neighborhoods and provision for common spaces, can make significant progress toward New Urbanist objectives. No paradigm shift is needed to realize this vision - rather, we can give careful attention to more subtle changes within our existing regulatory structure. These changes can bring the “sense of place,” community, and sustainability back to our residential neighborhoods.



The Zoning Ordinance of tomorrow, with beginnings rooted in today’s planning and urban design innovation, is one based on the ideals of New Urbanism, where a hierarchy or transect of uses and density make provision for town centers, village sub-centers, close-knit neighborhoods, parks, greens, plazas, and greenways, and the public realm in all it’s various forms. The Zoning Ordinance of tomorrow will not only support efficiency, environmental protection, and social justice, but will take-on the forgotten responsibility of “good urban form” evaluated in terms of the *creation of community* (“an *interacting* population of various kinds of individuals with *common interests* in a *common location*”).

Through improved regulation urban design policy can help to achieve not only good urban form, but an *increase in social capital*. Albeit the choice to spend more time with neighbors and associate oneself with the larger community is one of individual origin. However, the opportunities for such social interaction, mutual trust, and support are increased ten-fold when a community lives in an urban landscape that increases the frequency of such interaction in the public realm.

The new American dream is residing in a “livable” and sustainable community where interaction with one’s neighbors and the larger community is commonplace. New Urbanist principles must be applied not only to project-scale developments (Seaside), but to the municipal-scale (new and infill residential neighborhoods and mixed-use centers), and the regional scale (transit-oriented development), to define a hierarchy of uses and densities, as an antidote to the monotony of sprawl.

The previous chapters illustrate that embracing the principles of New Urbanism through residential infill is a viable means to reduce the negative impacts of sprawl. The success of New Urbanist developments (as documented in numerous studies) illustrates the market demand for similar livable communities. What is required of us now as municipal planners is reform of the codes themselves – to allow, encourage, and even *require* such development in the first place.

Urban infill, a subtext of New Urbanism, is an alternative to sprawl at the urban “edge,” including its attendant loss of greenfields, central city decay, economic disinvestment, increased crime, loss of sense of place, and the breakdown of basic family values. (Zelenak) It is clear from the sample of residential developments in this research that New Urbanist principles have not yet taken hold in zoning and subdivision regulations of Massachusetts cities and towns. Clearly, these regulations do not advance compact development, fail to protect open space, and lack provision for civic and common spaces.

Alternative development scenarios (Chapter 7) and a Model Hamlet Development Bylaw (Appendix B) demonstrate that key principles of New Urbanism can be spliced into our existing land use codes without a drastic paradigm shift. Both provide for the creation of residential infill based on the principles of New Urbanism identified in Chapters 2 and 3.

The following table summarizes the comparison between conventional (by-right) subdivisions and the alternative (New Urbanist) designs provided in Chapter 7:



Evaluation Criteria	Conventional Development (Approved)	Green Acres Boxborough	Cornerstone Estates Scituate	Conifer Lane Westwood	Carriage Estates Reading	Alternative Development (New Urbanism Applied)	Green Acres, Boxborough (Hamlet Cluster)	Carriage Estates Reading (Hamlet Cluster)
Preserved Open Space								
Common Space								

Evaluation Key	
• Meets or Exceeds Criteria	
• Moderately Addresses Criteria	
• Fails to Address Criteria	

Table 9.1. Evaluation of the conventional by-right subdivisions compared to alternative development possible under the principles of New Urbanism and guidelines established by the Model Hamlet Development Bylaw.

The Hamlet: A Theory of Good Neighborhood Form

The Model Hamlet Development Bylaw (Appendix B) illustrates several key advantages over conventional subdivision regulations and cluster development zoning provisions as follows:

1. Compact cluster development and the preservation of open space is the required (by-right) development, not a “special exception.”
2. Common space is required in residential developments to serve the needs of new residents created by the development.

Transferability

While the application of this work was limited to the narrow area of residential development in four cities and towns, for the purpose of a focused analysis, the framework and principles are transferable



to land use regulations across our Commonwealth and the nation. No new paradigm is necessary to embrace the concepts of New Urbanism in our land use regulations. It is not necessary to abandon our existing regulatory structure, or to insist upon the “transect” model as a basis for land use regulations. Many communities would benefit simply in the **shift** from contemporary sprawl-mandating regulations **toward** such a model, with the caveat that the details of local ordinances should be adjusted in accordance with the municipal context.

Caveats, Limitations on Scope & Recommendations for Future Work

*God grant me the serenity
to accept the things I cannot change;
courage to change the things I can;
and wisdom to know the difference.*

~The Serenity Prayer

The scope of this thesis is limited by a number of factors, necessary to ensure a feasible study within the limited time and resources available. This thesis is an argument for the viability of incorporating New Urbanist principles into residential infill developments. The Analysis applies two central New Urbanist principles to the development of residential infill as follows:

1. Compact and Efficient Urban Form (both in individual lot size and clustering of the whole)
2. Emphasis on and Definition of Common Space (the public realm)

This research does not address the following important issues, which while related, are beyond the scope of this thesis:

- **Application of New Urbanist principles to the remaining inventory of properties in other land use categories, such as commercial and mixed-use districts.**
- **The necessity for greater state and regional planning, hierarchy and coordination**
- **NIMBY-ism, public education, and opposition to any form of development** It is understood that NIMBY single-family homeowners will protest ANY kind of residential infill, regardless of quality or the noble virtues of New Urbanism. But, as the great professor Terry Szold once said, “I relieve you of your mediocrity.” In the interest of chance, vision and progress, an assumption is made that the findings and recommendations of this research may be incorporated into local and state regulations accordingly.

Additional caveats about the scope of this research are noted in the selection of communities and sites analyzed, though the author does not believe these limitations significantly alter the implications of findings and recommendations herein.



Admittedly, this work merely scratches the surface of possibilities for new and innovative land use regulation. This framework and model are intended as a starting point only for a glimpse of the future.

Contributions to Existing Literature & Field

There is a large body of literature on the *theoretical* principles and benefits of New Urbanism over conventional development. Practical applications, however, are few and far between, and these are not found frequently in Massachusetts. While specific in scope, the findings and recommendations of this research have a high level of “transferability” for application to municipal land use regulations throughout the Commonwealth and the nation. It is the hope of this author that the principles and recommendations throughout this thesis will be applied likewise to land use regulations across the Commonwealth which is my home.



APPENDIX A: CHARTER OF NEW URBANISM

Source: Congress for the New Urbanism (www.cnu.org)

The Congress for the New Urbanism views disinvestment in central cities, the spread of placeless sprawl, increasing separation by race and income, environmental deterioration, loss of agricultural lands and wilderness, and the erosion of society's built heritage as one interrelated community-building challenge.

We stand for the restoration of existing urban centers and towns within coherent metropolitan regions, the reconfiguration of sprawling suburbs into communities of real neighborhoods and diverse districts, the conservation of natural environments, and the preservation of our built legacy.

We recognize that physical solutions by themselves will not solve social and economic problems, but neither can economic vitality, community stability, and environmental health be sustained without a coherent and supportive physical framework.

We advocate the restructuring of public policy and development practices to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice.

We represent a broad-based citizenry, composed of public and private sector leaders, community activists, and multidisciplinary professionals. We are committed to reestablishing the relationship between the art of building and the making of community, through citizen-based participatory planning and design.

We dedicate ourselves to reclaiming our homes, blocks, streets, parks, neighborhoods, districts, towns, cities, regions, and environment.

We assert the following principles to guide public policy, development practice, urban planning, and design:

The Region: Metropolis, City, and Town

- Metropolitan regions are finite places with geographic boundaries derived from topography, watersheds, coastlines, farmlands, regional parks, and river basins. The metropolis is made of multiple centers that are cities, towns, and villages, each with its own identifiable center and edges.



- The metropolitan region is a fundamental economic unit of the contemporary world. Governmental cooperation, public policy, physical planning, and economic strategies must reflect this new reality.
- The metropolis has a necessary and fragile relationship to its agrarian hinterland and natural landscapes. The relationship is environmental, economic, and cultural. Farmland and nature are as important to the metropolis as the garden is to the house.
- Development patterns should not blur or eradicate the edges of the metropolis. Infill development within existing urban areas conserves environmental resources, economic investment, and social fabric, while reclaiming marginal and abandoned areas. Metropolitan regions should develop strategies to encourage such infill development over peripheral expansion.
- Where appropriate, new development contiguous to urban boundaries should be organized as neighborhoods and districts, and be integrated with the existing urban pattern. Noncontiguous development should be organized as towns and villages with their own urban edges, and planned for a jobs/housing balance, not as bedroom suburbs.
- The development and redevelopment of towns and cities should respect historical patterns, precedents, and boundaries.
- Cities and towns should bring into proximity a broad spectrum of public and private uses to support a regional economy that benefits people of all incomes. Affordable housing should be distributed throughout the region to match job opportunities and to avoid concentrations of poverty.
- The physical organization of the region should be supported by a framework of transportation alternatives. Transit, pedestrian, and bicycle systems should maximize access and mobility throughout the region while reducing dependence upon the automobile.
- Revenues and resources can be shared more cooperatively among the municipalities and centers within regions to avoid destructive competition for tax base and to promote rational coordination of transportation, recreation, public services, housing, and community institutions.

The Neighborhood, The District, and the Corridor

- The neighborhood, the district, and the corridor are the essential elements of development and redevelopment in the metropolis. They form identifiable areas that encourage citizens to take responsibility for their maintenance and evolution.



- Neighborhoods should be compact, pedestrian-friendly, and mixed-use. Districts generally emphasize a special single use, and should follow the principles of neighborhood design when possible. Corridors are regional connectors of neighborhoods and districts; they range from boulevards and rail lines to rivers and parkways.
- Many activities of daily living should occur within walking distance, allowing independence to those who do not drive, especially the elderly and the young. Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy.
- Within neighborhoods, a broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interaction, strengthening the personal and civic bonds essential to an authentic community.
- Transit corridors, when properly planned and coordinated, can help organize metropolitan structure and revitalize urban centers. In contrast, highway corridors should not displace investment from existing centers.
- Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to the automobile.
- Concentrations of civic, institutional, and commercial activity should be embedded in neighborhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them.
- The economic health and harmonious evolution of neighborhoods, districts, and corridors can be improved through graphic urban design codes that serve as predictable guides for change.
- A range of parks, from tot-lots and village greens to ballfields and community gardens, should be distributed within neighborhoods. Conservation areas and open lands should be used to define and connect different neighborhoods and districts.

The Neighborhood, The District, and the Corridor

- A primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use.
- Individual architectural projects should be seamlessly linked to their surroundings. This issue transcends style.
- The revitalization of urban places depends on safety and security. The design of streets and buildings should reinforce safe environments, but not at the expense of accessibility and openness.



- In the contemporary metropolis, development must adequately accommodate automobiles. It should do so in ways that respect the pedestrian and the form of public space.
- Streets and squares should be safe, comfortable, and interesting to the pedestrian. Properly configured, they encourage walking and enable neighbors to know each other and protect their communities.
- Architecture and landscape design should grow from local climate, topography, history, and building practice.
- Civic buildings and public gathering places require important sites to reinforce community identity and the culture of democracy. They deserve distinctive form, because their role is different from that of other buildings and places that constitute the fabric of the city.
- All buildings should provide their inhabitants with a clear sense of location, weather and time. Natural methods of heating and cooling can be more resource-efficient than mechanical systems.
- Preservation and renewal of historic buildings, districts, and landscapes affirm the continuity and evolution of urban society.



APPENDIX B: MODEL HAMLET DEVELOPMENT BYLAW

Commentary & Caveats:

A Starting Point

There is nothing in Massachusetts General Laws that prevents local cities and towns from designating cluster subdivisions as the preferred form of residential development. This Appendix provides a model bylaw (framework) for the creation of traditional New England (New Urbanist) residential neighborhoods (through cluster subdivisions) based on the concept of the Hamlet, where common spaces are the focal point of neighborhoods. This model bylaw is not meant to be comprehensive and merely scratches the surface of the possibilities for incorporating New Urbanist concepts into the development of residential infill in Massachusetts. It is essential that each city and town modify the model to address local needs.

Cluster Requirement

The town of Amherst, Massachusetts requires developers to cluster in several resource protection districts, in addition to allowing cluster by right in other districts through a Site Plan Review process.²⁵ However, the legality of this mandatory approach has not been tested in the courts. The Subdivision Control Law, G.L. c. 41, ss. 81K-81GG, permits developers to subdivide as of right, as long as the project complies with local standards. There is no provision in Massachusetts General Laws which prohibits the allowance of cluster developments by-right, or mandates conventional subdivisions to the detriment of natural resources and creation of true communities. The Commonwealth's current affordable housing crisis is in large part the result of unnecessarily large lot size and setback requirements for residential development consuming a grossly disproportionate amount of land. Such requirements consume open space at an alarming rate, increase development, infrastructure and housing costs, and prevent the creation of effective urban forms referred to by Author James Howard Kunstler as "civic art." The time and uncertainty of the Special Permit process often discourages developers from pursuing cluster development under bylaws which offer cluster only through conditional use permits. As planners and urban designers we must ask the question, why is the *preferred* development arrangement offered only through *exception*? A community that has predetermined cluster development as favorable to conventional development should not create a bylaw that provides disincentives for the use of such compact development. It is clear that compact cluster development should be allowed by-right, while any deviation from that norm should be allowed only by special exception. For these reason, the model bylaw mandates compact cluster development (except by waiver), in sharp contrast to the irresponsibility of current regulatory mandates for sprawl.

²⁵ Conversation with Bob Mitchell AICP, Planning Director for the Town of Amherst, MA, Wednesday, April 14, 2004 1:41 PM



This requirement also eliminates the need for nonsensical “yield plans” and complex density bonus which are yet another arbitrary set of numbers and proportions having no relationship to desirable urban form or the public interest. (Conventional dimensional standards for lot sizes are themselves irrational and arbitrary themselves, having no demonstrated relationship to justifiable public interests). Under this bylaw landowners are free to develop privately owned land, but only in coordination with surrounding development, and in accordance with sustainable development practices. The sacrifice of unbridled private property rights is the price (responsibility) we pay for the benefit (returns) of living in an organized society where the needs of the many outweigh the needs of the few.

Certain attorney’s may argue that requiring cluster development over conventional subdivision is unlikely to be upheld by the Courts on appeal unless the “yield” of such development (total number of market-rate single-family dwelling units) is equal to or greater than that allowed under conventional subdivision regulations. This is nonsensical, since the yield created by the conventional subdivision requirements (excessive dimensional controls) is **arbitrary** in the first place. An alternative residential bylaw has significant incentives without a density bonus. Reduced lot sizes reduce infrastructure and construction costs. While minimum lot sizes and setbacks were once necessary to protect properties from adjacent uses, the excessive dimensional requirements in most municipal zoning codes have no substantiated relationship to the public interest. The development of residential neighborhoods is a question of **common** public interests not **private** property rights. While landowners have the right to develop their land, such development should be sustainable in the public interest and should provide for an adequate supply of public amenities including preserved public open space. For this reason I recommend that no residential infill be approved by local planning boards unless development proposals meet the minimum criteria established in this bylaw.

Common Space Requirement

The adoption of cluster development bylaws across the state is beginning to address the first key principle of new urbanism identified in this analysis - the preservation of open space through compact and efficient development. However, these cluster development bylaws fail to address the public realm and the relationship of the private dwellings to each other and the creation of a civic environment. As this concern for public space is perhaps more central to the New Urbanism than the conservation of greenfields through clustering, this model bylaw emphasizes the creation of common spaces as the focus of new residential development in the form of Hamlets.

Codification & References

This model bylaw is not codified with section numbers for ease of reading and to allow insertion into any local bylaw or ordinance. References are made to provisions in the Reading Zoning Bylaw to illustrate the relationship of the Hamlet overlay to underlying zoning and subdivision requirements. It is essential that each city and town modify the model to splice seamlessly into existing regulations and to address local needs and concerns.



Simplified Development Process

Many communities have expressed the need for regulations that provides a *simple* method for calculating the number of dwelling lots permissible under the bylaw and which streamlines the subdivision and special permit processes. Some towns expressed a desire for a model that provides the same overall density as conventional subdivision, while others desire the ability to provide for density bonuses (presumably to make cluster development more attractive to developers). This bylaw may be amended to allow development density equal to or greater than that of conventional subdivision developments by modifying the minimum open space requirements.

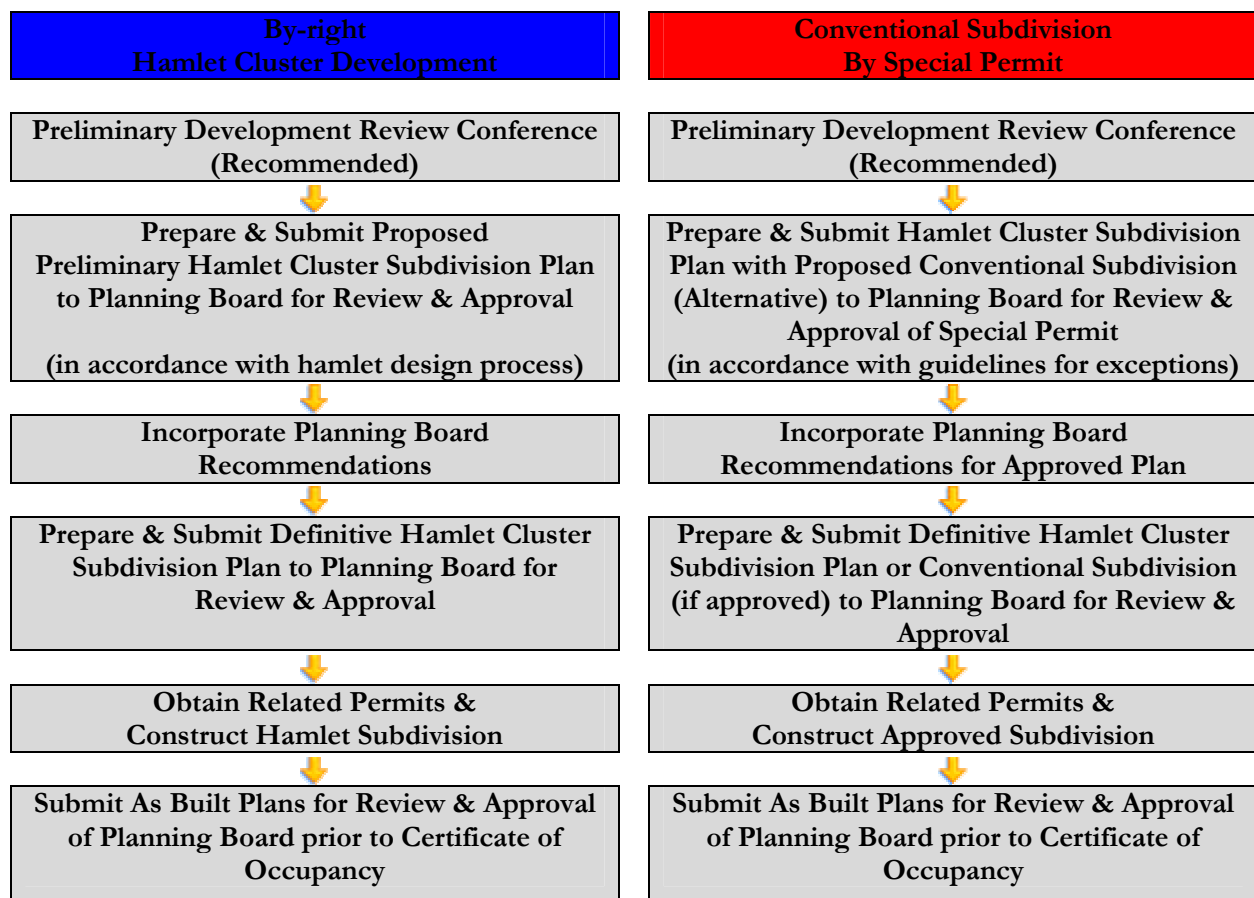


Figure B.1. Diagram Illustrating the permitting and approval process and sequence for the creation of Hamlet Cluster Residential Developments (by-right) as compared with conventional subdivisions by Special Permit.



Design Process

The conservation of land (through compact clustering of development) and provision for common civic spaces are the focus of this model bylaw. The design process makes the placement of greenways, common spaces, house lots and streets sensitive to this objective. The process consists of four steps:

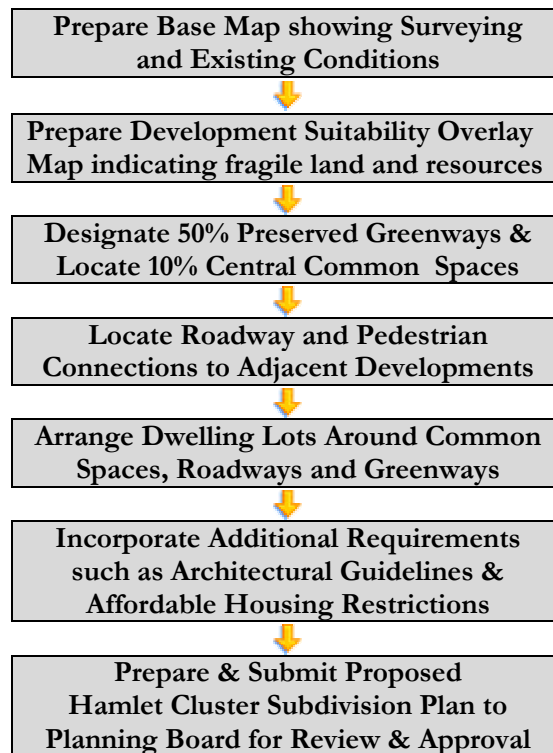


Figure B-2. Diagram Illustrating the design process for the creation of Hamlet Cluster Residential Developments.

Benefits of Bylaw

Following is a summary of the key provisions and benefits of this bylaw:

Preserved Open Space: The ordinance requires preservation of a minimum of 50% open space (with public access) within the development, to the benefit of those living within the neighborhood. Preserved open space captures important natural resources such as waterbodies and wetlands.

Maximum Lot Sizes: The ordinance establishes maximum lot sizes rather than minimum sizes; thereby ensuring private housing utilizes remaining land in the community efficiently and responsibly for social, infrastructure, and environmental purposes.



Clustering of Homes: By requiring the clustering of housing lots around common open spaces, the bylaw ensures proximity of dwelling units. This, in turn, allows for a minimum of healthy social interaction fostering a sense of community.

Variety of Lot & Dwelling Sizes: The ordinance requires a mix of lot sizes and dwelling units, thereby ensuring that a range of housing types are promoted within the same neighborhood. This not only avoids social segregation, but provides for a range of housing prices and types to meet all needs. Conventional zoning, subdivision and cluster ordinances produce a monotony of cookie-cutter lot-alike units. The requirement for a range of lot sizes and dwelling types is in response to the never-ending battle in our Commonwealth over Chapter 40B Comprehensive Permits. While I strongly support the **purposes** of Chapter 40B, the Anti-Snob Zoning Act,” it is hard to support a statewide mandate that produces only a limited percentage of affordable housing units at the expense of other local concerns and proper regulatory oversight. Chapter 40B will never produce an adequate supply of affordable housing units in any community in its current structure. The 10% threshold it establishes is an arbitrary number (more than 10% of our housing units need to be affordable) and even this it fails to produce. Dwelling and lot size variation in the bylaw is intended to be modified by each community to provide a broad range of housing options in a single unified and comprehensive neighborhood.

Street Connectivity: The bylaw requires that a minimum of two road and right-of-way connections be provided to adjacent roads, properties, and existing developments. The resulting network of roadway connections will reduce overall traffic congestion within the community as a result of new residential development.

Pedestrian Connectivity & Amenities: The ordinance requires that a minimum of 5% of the development area be utilized for pedestrian paths for connectivity within and outside the neighborhood. In addition, a minimum of one public amenity must be provided for every two lots created, such as public benches and picnic tables for common spaces.

Additional Site Plan & Architectural Standards: The ordinance incorporates by reference an external document entitled the “Site Plan & Design Review Guidelines” which, adopted by the Planning Board at its discretion, provides additional guidelines for site plan, architectural, and development design. Incorporation of such a document allows the Board to update such review criteria and guidelines more frequently than is allowed by petition to the Town Meeting or City Council for amendments to the Zoning Code.

Model Bylaw

Preamble & Purpose

Whereas conventional residential subdivision of land in Massachusetts and the [Town] of [Reading] has resulted in an inefficient use of private land to the detriment of public interests;



Whereas, large lot tract subdivisions where every square foot of land is divided into private lots results in a fragmented landscape where no such land is preserved for the betterment of future generations, neighborhoods are grossly lacking in common space, and infrastructure costs are unnecessarily high;

Therefore let it be resolved that Hamlet Residential Development is the preferred form of residential development and/or redevelopment in the [Town] of [Reading].

Authority

This bylaw is adopted under the Home Rule Amendment of the Massachusetts Constitution and the Home Rule Statutes and in accordance with the provisions of the Massachusetts General Laws, Chapter 40A and any and all amendments thereto. This ordinance shall be known and may be cited as "The Hamlet Development Overlay District of the [Town] of [Reading], Massachusetts." The site plan and design review process described herein is adopted pursuant to the Home Rule Amendment of the Massachusetts Constitution for the following purposes:

- to protect and promote the health, safety, convenience, and general welfare of the inhabitants of the [town]
- to promote acceptable site planning and design practices and standards within the [town];
- to protect the safety, convenience and welfare of the inhabitants of the [town] by regulating the laying out and constructions of ways in subdivisions providing access to the several lots therein, but which have not become public ways, and ensuring adequate provision for parks and open areas in new and infill neighborhoods;
- to lessen congestion in the streets;
- to prevent the overcrowding and undue concentration of population, and to prevent inefficient use of land;
- to encourage affordable housing for persons of all income levels, including low, moderate, and median income families;
- to ensure the economy of land and infrastructure and to facilitate the adequate provision of transportation, water, water supply, drainage, sewerage, parks, open space and other public requirements;
- to conserve the value of land and buildings, including the conservation of natural resources and the prevention of pollution of the environment;
- to encourage the most appropriate use of land throughout the [town];
- to create compact housing and neighborhood developments of a traditional New England character in the form of hamlets in order to preserve open space, lower infrastructure costs, increase opportunities for social interaction and sense of community;
- to ensure that new residential development will be compatible with historic village and hamlet building patterns of New England, and that they will reinforce the "sense of place"



- to control the location, scale and physical character of such new development, as well as the manner in which they would fit into the existing pattern of fields, woodlands and developed areas;
- to encourage the preservation of open land for its scenic beauty and to enhance agricultural, open space, forestry, and recreational use;
- to preserve historical and archeological resources; to protect the natural environment, including the City's varied landscapes and water resources;
- to protect the value of real property (both existing and proposed);
- to promote more sensitive siting of buildings and better overall site planning as an alternative to standard subdivision development;
- to perpetuate the appearance of the [Town]'s traditional New England landscape character and land use pattern in which small villages contrast with open land.
- to facilitate the construction and maintenance of streets, utilities, and public services in a more economical and efficient manner;
- to encourage a less sprawling and more efficient form of development that consumes less open land and conforms to existing topography and natural features better than a conventional or grid subdivision;
- to ensure the unified development of new and infill neighborhoods and residential districts;
- to minimize the total amount of disturbance on the site.
- to preserve open space and common civic areas for active and passive recreational use, including the provision of neighborhood parks and trails;
- to further the goals and policies of the local comprehensive plans and regional plans.

The above purposes may be cited as the essential public interests protected by this [bylaw].

Relationship to Subdivision Rules & Regulations

Under the authority vested in the Planning Board of the [Town] of [Reading] by Section 81 Q of Chapter 41 of the General Laws, said Board hereby adopts these regulations by incorporation, into the Rules and Regulations Governing the Subdivision of Land in the [Town] of [Reading].

The Planning Board shall adopt and amend such additional Rules and Regulations Governing the Subdivision of Land in the [Town] of [Reading], as are deemed necessary to address the purposes of Section 81M of Chapter 41 of the General Laws, Subdivision Control, including all technical and engineering requirements therein. The Planning Board may adopt additional rules and regulations governing the subdivision approval process and sequence in accordance with the Subdivision Control Law (M.G.L. Chapter 41, Sections 81K-81GG), including submittal requirements, preliminary conferences, the submission of Preliminary and Definitive Plans, final approval and monitoring. In addition the Planning Board may also adopt reasonable regulations for the administration of Site Plan Review.



Nothing contained herein shall exempt a proposed subdivision from compliance with other applicable provisions of these bylaws or the Subdivision Rules and Regulations of the Planning Board, nor shall it affect the right of the Board of Health and of the Planning Board to approve, condition or disapprove a subdivision plan in accordance with the provision of such Rules and Regulations and of the Subdivision Control Law.

Zoning Map & Overlay District

The Hamlet Development Overlay District shall be defined and bounded on the maps accompanying this bylaw, entitled "Town of Reading Zoning Map, [date], on file in the office of the Town Clerk and with the Planning Board. The zoning overlay map, with all explanatory matter thereon, is made part of this ordinance. The geographic boundaries of the Hamlet Development Overlay District shall be the same as those for the underlying Zoning Districts S-20, S-15, and S-40, "Residence Single Family."

Applicability

All residential subdivisions within the [Hamlet Development Overlay District] shall be subject to development in accordance with the provisions of this [bylaw]. Unless otherwise provided for in this Section, the requirements of the underlying zoning districts shall apply. The Planning Board may grant a Definitive Hamlet Subdivision Approval subject to the regulations and conditions herein. Any parcel or contiguous parcels of at least 5 acres, in common ownership, in any district permitting single family residences, developed or undeveloped may redevelop the existing development in accordance with the provisions of this ordinance.

Definitions

Hamlet: A residential development designed in accordance with this bylaw, in which the buildings are clustered together with reduced lot sizes and frontage. The land not included in the building lots is permanently preserved as open space. Hamlets shall consist of clustered residential dwellings only, developed around a common open space or open spaces, but greater housing variety is permitted, as described herein.

Conventional Subdivision: A residential development designed in accordance with the requirements of the underlying zoning district.

Special Permit Required for Conventional Subdivision

A Special Permit is required from the Planning Board for the development of any Conventional Subdivision in accordance with the provisions of the underlying districts. The Planning Board may grant a special permit for a conventional subdivision development if it determines that the proposed conventional subdivision is superior in design to the Hamlet Cluster and will produce less



detrimental impacts on the tract and the larger community, after considering purposes for, and public interests protected by, this bylaw (above).

Approved Plan Required

No person shall make a subdivision with the meaning of the Subdivision Control Law of any residentially zoned land within the [Town] or proceed with the improvement for sale of lots in a subdivision, or the construction of ways, or preparation therefore or the installation of utilities and municipal services therein, unless and until a Definitive Plan of such Subdivision has been submitted and approved by the [Reading] Planning Board as hereinafter provided.

Continuation of Public Hearing to Address Site Plan & Design Issues

The Planning Board shall have the authority to continue any hearing for good cause, to a certain date announced at the hearing, for reasons stated at the hearing, which may include the receipt of additional information offered by the applicant or others, or information and plans required of the applicant deemed necessary by the Board. If a date for continuation is not specified, the hearing shall reconvene within twenty-one (21) days after the submission of a specified piece of information or the occurrence of a specified action. If the date of said continued hearing is not announced at an earlier hearing, the new hearing date shall be published in a newspaper of general circulation in the [Town of Reading], and written notice shall be sent to any person who so requests in writing, at the expense of the applicant.

Application & Submission Requirements

The Planning Board shall adopt Rules and Regulations consistent with the provisions of this bylaw and shall file a copy of said Rules and Regulations with the Town Clerk. Such rules shall address the size, form, contents, and number of copies of plans and other submittals and the procedure for the review of subdivisions under this bylaw.

Compliance with Conditions of Approval

If it issues a Definitive Subdivision Approval, the Planning Board may impose standard and conditions in the approval which the Board deems necessary or desirable to protect the values and public interests protected by this bylaw. All activities shall be done in accordance with those conditions. All work shall be subject to inspection by the Planning Board and its agents.

Development Review Process

The following steps shall be followed sequentially in the development review process, and may be combined only at the discretion of the municipality:



1. Sketch Hamlet Development Plan

The applicant shall submit a Sketch Hamlet Development Plan for Review and discussion of the Board at a pre-application development review conference prior to the submission of a Preliminary and Definitive subdivision plan, in accordance with the Subdivision Rules and Regulations of the [Town] of [Reading]. This requirement is intended to speed the formal development review process and may result in lower overall costs for the project.

The purpose of a pre-application review is to minimize the applicant's costs of engineering and other technical experts, and to commence negotiations with the Planning Board at the earliest possible stage of development. The purpose of the pre-application meeting is to scope the important issues posed by the development, review the requirements and criteria for subdivision approval, obtain preliminary feedback from the Planning Board and/or its technical experts, and address questions in order to give the applicant advice and comments prior to submitting a Preliminary subdivision plan. Prior to investing in extensive professional design costs for preparation of formal subdivision plans, the applicant shall review the proposed development of the parcel of land with the Planning Board, in order to explore general conditions involving the site and to discuss potential problems. Pencil sketches, which need not be professionally prepared, will assist in this discussion, and should show the critical features of a Preliminary Plan. It should be understood by all parties that this is only a preliminary review and that other issues may be raised and addressed in the public hearing process.

2. Preliminary Hamlet Cluster Subdivision Plan

The applicant shall Prepare and submit a Preliminary Hamlet Cluster Subdivision Plan (or conventional subdivision plan if approved) for review and approval of the Planning Board in accordance with the Subdivision Rules and Regulations of the [Town] of [Reading].

3. Incorporate Planning Board Recommendations

The applicant shall revise the Preliminary Hamlet Cluster Subdivision Plan to incorporate all requirements indicated by the Planning Board during review of the Preliminary review described in item 2 above. Failure to incorporate all such requirements or to respond to all requests for information may result in delay of development review and approval.

4. Definitive Hamlet Cluster Subdivision Plan

The applicant shall prepare and submit the definitive Hamlet Cluster Subdivision Plan (or conventional subdivision plan if approved) for review and approval of the Planning Board in accordance with the Subdivision Rules and Regulations of the [Town] of [Reading].



Development Design Process

The sequential Design Process described below is required for all developments subject to the provisions of this bylaw. Each proposed development plan prepared for the above review process shall follow the design process outlined below. When the development plan is submitted, applicants shall be prepared to demonstrate to the Planning Board that this Design Process was considered in determining the layout of proposed streets, houselots, contiguous open space (greenways) and common spaces. All Sketch, Preliminary, and Definitive Subdivision Plans prepared subject to the provisions of this [bylaw] shall include documentation of the four-step design process described below in determining the layout of proposed greenway lands, common spaces, house sites, streets and lot lines, as described below. All applicants for subdivision approval governed by this bylaw shall have the burden of proving by a preponderance of the credible evidence that the proposed residential development have been developed in accordance with the Hamlet Development Guidelines established herein. Applicants shall be prepared to submit four separate sketch maps indicating the findings of each step of the design process, if so requested by the Planning Board. Failure to provide adequate evidence to the Planning Board shall be sufficient cause for the Planning Board to withhold subdivision approval or to continue the public hearing until such time as the applicant has provided sufficient evidence thereof.

1. **Prepare Site Context Map.** This map illustrates the parcel in connection to its surrounding neighborhood. Based upon existing data sources and field inspections, it should show various kinds of major natural resource areas or features that cross parcel lines or that are located on adjoining lands. This map enables the Planning Board to understand the site in relation to what is occurring on adjacent properties.
2. **Prepare Existing Conditions/Site Analysis Plan.** This plan familiarizes officials with existing conditions on the property. Based upon existing data sources and field inspections, this base map locates and describes noteworthy resources that should be left protected through sensitive subdivision layouts. These resources include wetlands, riverfront areas, floodplains and steep slopes, but may also include mature un-degraded woodlands, hedgerows, farmland, unique or special wildlife habitats, historic or cultural features (such as old structures or stone walls), unusual geologic formations and scenic views into and out from the property. By overlaying this plan onto a development plan the parties involved can clearly see where conservation priorities and desired development overlap or conflict.

The existing conditions plan shall also indicate the following features:

- Topographic, physical, and cultural features including fields, pastures, meadows, wooded areas, trees with a diameter of fifteen inches or more, hedgerows and other significant vegetation, steep slopes (over 25%), rock outcrops, soil types, ponds, ditches, drains, dumps, storage tanks, streams within two hundred (200) feet of the tract, and existing rights-of-way and easements, and cultural features such as all structures, foundations, walls, wells, trails, and abandoned roads;



- The location and delineation of ponds, streams, ditches, drains, and natural drainage swales, as well as the 100-year floodplains and wetlands;
- Vegetative cover conditions on the property according to general cover type including cultivated land, permanent grass land, meadow, pasture, old field, hedgerow, woodland and wetland, trees with a caliper in excess of fifteen inches, the actual canopy line of existing trees and woodlands. Vegetative types shall be described by plant community, relative age and condition;
- All existing man-made features including but not limited to streets, driveways, farm roads, woods roads, buildings, foundations, walls, wells, drainage fields, dumps, utilities, fire hydrants, and storm and sanitary sewers;
- Locations of all historically significant sites or structures on the tract, including but not limited to cellarholes, stone walls, earthworks, and graves;
- Locations of trails that have been in public use (pedestrian, equestrian, bicycle, etc.);
- All easements and other encumbrances of property which are or have been filed of record with the Recorder of Deeds of _____ County shall be shown on the plan.

3. **Prepare Site Layout Plan** . This plan indicates a general concept for land conservation and development, in accordance with items A-E below, the boundaries of the lot(s) in the proposed development, proposed structures, drives, parking, fences, walls, walks, outdoor lighting, and all proposed greenways, open space and common spaces. Plans shall be prepared by a Registered Professional Engineer, Registered Land Surveyor, Architect, or Landscape Architect, as may be appropriate.

A. Delineation of Greenway Lands

A minimum of 50% of the upland area of the parcel ("applicable land area") shall be provided as open space. All remaining land area not utilized for lots, roads, and drainage shall be set aside as open space. Open space shall be deeded to the City/Town or a qualified land trust pursuant to [see section below] of this bylaw, to ensure permanent protection in the public interest.

Open space shall be planned as large, contiguous areas whenever possible. Long thin strips or narrow areas of open space (less than 100' wide) shall occur only when necessary for access, as vegetated buffers along wetlands or the perimeter of the site, or as connections between open space areas.



Open space shall be arranged to protect valuable natural and cultural environments such as stream valleys, wetland buffers, unfragmented forestland and significant trees, wildlife habitat, open fields, scenic views, trails, and archeological sites and to avoid development in hazardous areas such as floodplains and steep slopes. The development plan shall take advantage of the natural topography of the parcel and cuts and fills shall be minimized.

Open space may be in more than one parcel provided that the size, shape and location of such parcels are suitable for the designated uses. Where feasible, these parcels shall be linked by trails.

Preserved open spaces shall capture existing wetlands, waterways, waterbodies, forests, steep slopes, flood zones, and other natural resources. All wetlands, waterbodies, waterways, and their respective buffer zones under the Massachusetts Wetlands Protection Act must be included within the required open space but shall not count toward the open space requirement. No development within said water resources or their buffer zones shall be permitted except for crossings necessary to access land-locked parcels otherwise undevelopable under the provisions of this bylaw. Roadway rights of way shall not count toward the area to be provided as open space.

Proposed greenway lands shall be designated using the Existing Conditions/Site Analysis Plan as a base map. The municipality's Map of Potential Conservation Lands in the Comprehensive Plan shall also be referenced and considered. Primary Conservation Areas shall be delineated comprising floodplains, wetlands and slopes over 25 percent.

The applicant shall prioritize natural and cultural resources on the tract in terms of their highest to lowest suitability for inclusion in the proposed Greenway, in consultation with the Planning Board.

On the basis of those priorities and practical considerations given to the tract's configuration, its context in relation to resources areas on adjoining and neighboring properties, and the applicant's subdivision objectives, proposed Greenways shall be delineated to meet at least the minimum percentage of total required area for Greenways (50% of the total tract area) and in a manner clearly indicating their boundaries as well as the types of resources included within them. Provide draft restrictions governing the use of such land in accordance with guidelines established by the Planning Board.

Any proposed contiguous open space, unless conveyed to the [Town] or its Conservation Commission, shall be subject to a recorded restriction enforceable by the [Town], providing that such land shall be perpetually kept in an open state, that it shall be preserved for exclusively agricultural, horticultural, educational or passive recreational purposes, and that it shall be maintained in a manner which will ensure suitability for its intended purposes.

B. Location of Common Spaces



Locate proposed common spaces on the basis of the tract's configuration, its context in relation to item A above, and the applicant's subdivision objectives. Proposed Common Spaces shall be delineated to meet at least the minimum percentage of total required area for Common Spaces (10% of the total tract area) and in a manner clearly indicating their boundaries. Provide draft restrictions governing the use of such land in accordance with guidelines established by the Planning Board. This land shall be in a form usable to and accessible by the residents, such as a central greens, neighborhood squares, commons, recreational playing fields, a community park, or any combination of the above, as opportunities for neighborhood social gathering and interaction. At least 50% of lots shall and dwellings shall be oriented toward common spaces.

C. Location of House Sites

Potential house sites shall be tentatively located, using the Existing Conditions/Site Analysis Plan, and in relation to items A and B above.

Hamlet Developments may consist of any combination of single-family, two-family and multifamily residential structures. A multifamily structure shall not contain more than three (3) dwelling units. The architecture of all multifamily buildings shall be residential in character, particularly providing gabled roofs, predominantly wood siding, an articulated footprint and varied facades.

Choose from the following dwelling types and percentage requirements to establish the proportion of new housing units created in each development.²⁶

	Dwelling Type	Proportion of Total Lots
1	Single Family	1/3 (maximum)
2	Two Family	1/3 (minimum)
3	Three Family	1/3 (minimum)
4	Accessory Apartments	1 unit allowed for every 5 single-family dwellings

Lot Shape: All building lots must be able to contain a circle of a minimum diameter of 50' from the front lot line to the rear building line.

Setbacks: Individual lots, structures, and setbacks shall support the physical definition of streets and public spaces as places of shared use – the public realm. All proposed dwellings shall be oriented toward the street serving the premises, And shall be set back a minimum of 5' and a maximum of 10' from the front lot line, and a minimum of 50' from the outer perimeter of the land subject to the application. This 50' setback shall be maintained in a

²⁶ Modification of this provision provides for a mix of housing options, including affordable units and accessory apartments.



naturally vegetated state to screen and buffer the development and may be included within the required open space. This setback may be eliminated where the proposed development abuts existing permanent open space. All dwellings on each proposed roadway shall meet the same setback line, and such lines shall be labeled on the plan as the “Build-To Line.”

D. Alignment of Streets and Trails

Upon designating the house sites, a street plan shall be designed to provide vehicular access to each house, complying with the additional Planning Board Rules and Regulations and bearing a logical relationship to topographic conditions. Impacts of the street plan on proposed greenway lands shall be minimized, particularly with respect to crossing environmentally sensitive areas such as wetlands and traversing slopes exceeding 15%. Street connections shall generally be encouraged to minimize the number of new cul-de-sacs to be maintained by the municipality and to facilitate access to and from homes in different parts of the tract (and adjoining parcels). The sharing of driveways to reduce curb cuts is encouraged. Development shall provide a clear orientation and hierarchy of the overall layout. There shall be an integrated street grid (network) and connectivity within development, and street connections shall be provided to at least two abutting neighborhood roads and/or properties.

E. Drawing in the Lot Lines

Lot lines shall be drawn as required to delineate the boundaries of individual residential lots. Choose from the following lot sizes and percentage requirements to establish square footage of lots created in each development:

	Required Lot Size	Proportion of Total Lots
1	5,000 sq. ft.	1/3 (minimum)
2	7,500 sq. ft.	1/3 (minimum)
3	10,000 sq. ft.	1/3 (maximum)

Evaluation Criteria & Consultant Fees

Proposed Hamlet Cluster Subdivisions shall be evaluated subject to the following criteria. Pursuant to G.L. c. 44, s. 53G, the Board may require the applicant to establish an escrow account with an initial deposit of up to \$2,000.00, and thereafter engage a landscape architect to conduct a peer review of the proposed development in accordance with the guidelines above and the criteria below:

- 1. Understanding the Site.** Inventory existing site features, taking care to identify sensitive and noteworthy natural, scenic and cultural resources on the site, and determine the connection of these important features to each other.



2. **Evaluating Site Context.** Evaluate the site in its larger context by identifying physical (e.g., stream corridors, wetlands), transportation (e.g., road and bicycle networks), and cultural (e.g., recreational opportunities) connections to surrounding land uses and activities.
3. **Designating the Contiguous Open Space.** Identify the contiguous open space to be preserved on the site. Such open space should include the most sensitive and noteworthy resources of the site, and, where appropriate, areas that serve to extend neighborhood open space networks.
3. **Location of Common Spaces.** Identify the contiguous open space to be preserved on the site. Such open space should include the most sensitive and noteworthy resources of the site, and, where appropriate, areas that serve to extend neighborhood open space networks.
4. **Location of Development Areas.** Locate building sites, streets, parking areas, paths and other built features of the development. The design should include a delineation of private yards, public streets and other areas, and shared amenities, so as to reflect an integrated community, with emphasis on consistency with the City's historical development patterns.
5. **Location of Lot Lines.** Delineate lot lines in accordance with the above Development Design Process.

House Lot & Architectural Design Requirements

Reserved (for Future expansion)

Site Plan & Design Review Guidelines

- All lots shall front onto a street or a green
- At least two-thirds of the buildings shall have pitched gabled roofs with roof pitches between 8/12 and 12/12, and the orientation of those gable ends shall be mixed, with some facing the street and others with the ridgeline parallel to the street.
- At least 50% of the houses shall have a covered front entry porch, at least six-feet deep and raised a minimum of eighteen inches above ground level.
- Homes may be located at or within five feet of side lot lines.
- Residences housing more than one family shall be designed to emulate traditional buildings of this nature in historic settlements in New England, or shall be designed to resemble large single-family residences.
- Stucco and painted wood clapboard siding shall be encouraged
- Housing styles, shapes and materials should be varied, within the overall theme of traditional village dwellings found in the rural parts of New England (which may also include contemporary interpretations of vernacular building forms).



- If garages, carports or other accessory structures designed for accessory parking of automobiles in the Residential Areas are front-loaded (i.e, having their large entry door facing the street), they shall generally be set back at least 10 feet further (see also Section 104.G.5.a) from the front property line than the foremost facade of the principal building facing the front property line (stoops, porticos, open colonnades and open porches excluded).

Street & Streetscape Design Requirements

Reserved (for Future expansion)

- New streets proposed to be created as a part of any development proposal shall be integrated closely with the municipality's Official Map of existing and future streets. The Official Map shall show the realignment and redesign of certain intersections and road segments to facilitate traffic flow and improve safety.
- Rectilinear street layouts are generally preferred, with occasional diagonal elements to enhance visual interest, although curvilinear layouts shall be acceptable when designed to address environmental constraints, interconnect and produce terminal vistas of protected open space or prominent structures.
- Streets shall be aligned so that their terminal vistas are of open spaces or gateways, wherever possible. Where this is not possible, every effort shall be made to terminate those streets with buildings of above-average size, whose architecture shall be encouraged to be special in one way or another.
- Streets shall be interconnected as far as practicable (employing cul-de-sacs only where essential), and they may also be supplemented with back lanes or alleys. Where cul-de-sacs are deemed to be unavoidable, continuous pedestrian circulation shall be provided for by connecting sidewalks that link the end of the cul-de-sac with the next street (or open space).
- To the greatest extent practicable, streets shall be designed to have maximum lengths of 600 feet between intersections, and maximum lengths of 1,200 feet before terminating at three-way "T" intersections or angling off in a diagonal direction. (This design approach helps to reduce traffic speed, making the development more friendly to pedestrians.) Blocks greater than 600 feet long shall generally be provided with cross-block pedestrian connections at mid-block locations.
- Streets shall be laid out to promote pedestrian circulation and ease of access from all points in the Residential Areas to the Village Mixed Use/Commercial Area.
- Easements shall be reserved to permit streets to be extended to allow adjoining properties to be connected in the future, if so desired
- Collector streets shall generally connect existing municipal roads to central greens in each subdistrict.
- Street width and parking requirements



Street Tree, Amenity & Landscaping Requirements

Reserved (for Future expansion)

Utility Location & Curb-Cut Requirements

Reserved (for Future expansion)

Restrictions on Use & Ownership of Common Spaces & Greenways

Reserved (for Future expansion)

Pedestrian Connection Requirements

Reserved (for Future expansion)

Traffic Calming Requirements

Reserved (for Future expansion)

Consultant & Peer Review Fees

Reserved (for Future expansion)

Affordable Housing Requirements

Reserved (for Future expansion)

Performance Guarantees & Enforcement

Reserved (for Future expansion)

Severability:

If any provision of this bylaw is held invalid by a court of competent jurisdiction, the remainder of the bylaw shall not be affected thereby. The invalidity of any section or sections or parts of any section or sections of this bylaw shall not affect the validity of the remainder of the [Town of Reading] Zoning [Bylaw]. If, in any respect, any provisions of these Rules and Regulations in whole or in part, shall prove to be invalid for any reason, such invalidity shall only affect the part of such provision which shall be invalid, and in all other respects these Rules and Regulations shall stand as if such invalid provisions had not been made, and they shall fail to the extent, and only to the extent of such invalid provision, and no other provision of these Rules and Regulations shall be invalidated, impaired or affected thereby.

In the case of conflict between these Rules and Regulations and the Massachusetts General Laws, the General Laws shall govern.



APPENDIX C: WORKS CITED

Following is a listing of sources and references used in this thesis, both research and synthesis:

Books	Source:
1	Duany, Andres. <u>Towns and Town-Making Principles</u> . Cambridge, Massachusetts: Harvard University Graduate School of Design ; New York: Rizzoli, 1991. Rotch Library - Stacks NA9031.D83 1991
2	Congress for the New Urbanism. <u>Charter of the New Urbanism</u> . New York: McGraw Hill, 2000.
3	Mandelker, Daniel R. <u>Planning and Control of Land Development: Cases and Materials</u> . New York : Lexis Publishing, 2001.
4	Katz, Peter. <u>The New Urbanism: Toward An Architecture of Community</u> . New York: McGraw-Hill, 1994. Rotch Library - Stacks NA2542.4.K38 1994
5	Duany, Andres. <u>Suburban Nation: The Rise of Sprawl and the Decline of the American Dream</u> . New York: North Point Press, 2000.
6	Scully, Vincent Joseph. <u>American Architecture and Urbanism</u> . New York: H. Holt, 1988.
7	Hoch, Charles, Frank S. So, eds. <u>The Practice of Local Government Planning</u> . Washington, D.C.: Published in cooperation with the American Planning Association for the ICMA University by the International City/County Management Association, 2000.
8	Bobrowski, Mark. <u>Handbook of Massachusetts Land Use and Planning Law</u> . Boston: Little, Brown, 2002
9	New Urbanism: <u>Comprehensive Report & Best Practices Guide</u> . Ithaca, N.Y.: New Urban Publications, 2001.
10	Fulton, William B. <u>The New urbanism: Hope or Hype for American Communities?</u> Cambridge, MA: Lincoln Institute of Land Policy, 1996.
11	Suchman, Diane R. <u>Developing Successful Infill Housing</u> . Washington, D.C.: Urban Land Institute, 2002.
12	<u>The Smart Growth Tool Kit: Community Profiles and Case Studies to Advance Smart Growth Practices</u> . Washington, D.C.: Urban Land Institute, 2000.
13	<u>Infill: A New Concept in Urban Housing</u> . Boston, Massachusetts: Development Corporation of America.
14	<u>Infill Development : Strategies for Shaping Livable Neighborhoods</u> . Seattle, WA: Municipal Research & Services Center of Washington, 1997.



- 15 Suchman, Diane R. Developing Infill Housing in Inner-City Neighborhoods: Opportunities and Strategies. Washington, D.C.: Urban Land Institute, 1997.
- 16 Smart, Eric. Making Infill Projects Work. Washington, D.C.: Urban Land Institute & Lincoln Institute of Land Policy, 1985.
- 17 Infill Development Strategies. Washington, D.C.: Urban Land Institute & American Planning Association, 1982.
- 18 Lachman, M. Leanne. Urban Infill: Its Potential as a Development Strategy: Executive Summary. Chicago, Ill, Real Estate Research Corporation for Office of Policy Development and Research & U.S. Department of Housing and Urban Development, 1981
- 19 Mohny, David. Seaside: Making a Town in America. New York, N.Y.: Princeton Architectural Press, 1991.
- 20 McHarg, Ian L. Design With Nature. New York: J. Wiley, 1992
- 21 Traditional Neighborhood Development. Washington, D.C.: Institute of Transportation Engineers, 1999
- 22 Randall Arendt. Conservation Design for Subdivisions. Island Press. 1996
- 23 Frederick D. Jarvis. Site Planning and Community Design for Great Neighborhoods. Home Builder Press, 1993.
- 24 Listokin, David and Carole Walker. Subdivision and Site Plan Handbook. New Brunswick, N.J.: Center for Urban Policy Research, 1989.
- 25 Freilich, Robert H. and Michael Shultz. Model Subdivision Regulations: planning and law : A Complete Ordinance and Annotated Guide to Planning Practice and Legal Requirements. Chicago, Ill.: APA Planners Press, 1995.
- 26 Sanders, Welford. The Cluster Subdivision: A Cost Effective Approach. Chicago: American Planning Association, 1980.
- 27 Duany, Andres, Elizabeth Plater-Zyberk, and Jeff Speck. Suburban Nation: The Rise of Sprawl and the Decline of the American Dream. New York: North Point Press, 2000.
- 28 Arendt, Randall. Growing Greener: Putting Conservation Into Local Plans and Ordinances. Washington, D.C.: Island Press, 1999.
- Arendt, Randall. Growing Greener Ordinance Language: Visually Enhanced Zoning and Subdivision Models. United States Natural Lands Trust & Island Press, 2001. (CD)
- 29 Allan B. Jacobs. Great Streets. Cambridge, MIT Press. 1993.
- 30 Nelessen, Anton C. Visions for a New American Dream: Process, Principles, and an Ordinance to Plan and Design Small Communities, 2nd Edition. Chicago, Ill.: Planners Press, American Planning Association, c1994.
- 31 Burchell, Robert W. Land, Infrastructure, Housing Costs, and Fiscal Impacts Associated with



- Growth. Cambridge, MA: Lincoln Institute of Land Policy, 1995.
- 32 Landis, John D. Land Regulation and the Price of New Housing. Journal of the American Planning Association 54(1) 1986.
- 33 Lynch, Kevin. Good City Form. Cambridge, Mass.: MIT Press, 1981.
- 34 Peter Calthrope. The Next American Metropolis: Ecology, Community, and the American Dream. New York, N.Y.: Princeton Architectural Press, 1993.
- 35 Brough, Michael B. A Unified Development Ordinance. Washington, D.C.: Planners Press, American Planning Association, 1985.
- 36 Unwin, Raymond. Town Planning in Practice: An Introduction to the Art of Designing Cities and Suburbs. New York: Princeton Architectural Press, 1994.
- 37 Unwin, Raymond. Garden Cities & Town Planning. London: Leicester University Press, 1992
- 38 Bohl, Charles C. Place Making: Developing Town Centers, Main Streets, and Urban Villages. Washington, D.C.: Urban Land Institute, 2002.
- 39 Corbett, Judy. Designing Sustainable Communities: Learning from Village Homes. Washington, D.C.: Island Press, 2000.
- 40 Duany, Andres. The New Civic Art: Elements of Town Planning. New York: Rizzoli, 2003.
- 41 Duany, Andres. The Lexicon of the New Urbanism. Miami: Duany Plater-Zyberk & Co., 2002.
- 42 Song, Yan. Valuing the Impacts of New Urbanism on Prices of Single-Family Homes: A Case Study of Portland, Oregon. 2002.
- 43 From Garden City to Green City: The Legacy of Ebenezer Howard. Baltimore: Johns Hopkins University Press, 2002.
- 44 Dutton, John A. New American Urbanism: Re-Forming the Suburban Metropolis. New York, NY: Abbeville Pub. Group, 2000.
- 45 Andres Duany's Techniques in Traditional Neighborhood Development. Venice, California: Neighborhood Media Group, 1997.
- 46 Community Design Guidelines Manual. Watertown, N.Y.: New York State Tug Hill Commission, 1991
- 47 Land Development Handbook: Planning, Engineering, and Surveying. New York: McGraw-Hill, 2002.
- 48 Central Naugatuck Valley Regional Planning Agency. Least Cost Housing: Minimizing the Fiscal Impact of Zoning and Subdivision Regulations. Waterbury, Connecticut: The Agency, 1978
- 49 Kury, Mark A. Residential Cluster Development. Chicago: Council of Planning Librarians & American Planning Association, 1994.



- 50 Arendt, Randall. Rural by Design: Maintaining Small Town Character. Chicago, Ill.: Planners Press & American Planning Association, 1994.
- 51 Fader, Steven, 1951. Density by Design: New Directions in Residential Development. Washington, D.C.: Urban Land Institute, 2000.
- 52 Burden, Dan. Street Design Guidelines for Healthy Neighborhoods. Sacramento, CA: Center for Livable Communities, 1999.
- 53 Home Planners. Traditional Neighborhood Home Plans: 170 Designs for Living in Villages & Towns. Michican, Home Planners, LLC, 2000.
- 54 Conzen, Michael P. The Making of the American Landscape. New York, NY, Routledge, 1990.
- 55 Susanka, Sarah. The No So Big House: A Blueprint for the Way We Really Live. Newtown, CT: Taunton Press, Inc., 1998.
- 56 Burchell, Robert W. & David Listokin. Land, Infrastructure, Housing Costs and Fiscal Impacts Associated with Growth: The Literature on the Impacts of Sprawl vs. Managed Growth. Cambridge, MA: Lincoln Institute of Land Policy, 1995.
- 57 M.J. Eppli, & C.C. Tu. Valuing the New Urbanism: The Impact of New Urbanism on Prices of Single-Family Homes. Washington, DC: The Urban Land Institute, 1999.
- 58 C. Tu, & M.J. Eppli. Valuing New Urbanism: The Case of Kentlands. Real Estate Economics 27 (3) (1999) 453-473.
- 59 Zelenack, Ed. Brave New Urbanism: Renewing the Spirit of “Community” in America’s Cities. Community Links: Progress Through Partnership. Washington, DC: Community Policing Consortium, 2000.
- 60 MAPC (Metropolitan Area Planning Council). The Conservation Subdivision Design Project: Guide to Developing a Local Bylaw. Boston, MA: MAPC, 2000.
- 61 EOE (Executive Office of Environmental Affairs). Buildout Book. & Maps & Analysis. Available at <http://commpres.env.state.ma.us/content/buildoutbook.asp>
- 62 Sitkowski, Robert J., Anna M. Breinich, & Brian W. Oh. Enabling Legislation for Traditional Neighborhood Development Regulations. Land Use Law & Zoning Digest, American Planning Association (APA), October, 2001. Available at www.planning.org
- 63 EOE (Executive Office of Environmental Affairs). The State of Our Environment. April 2000.
- 64 The Land Conservation Center. Conserving our Commonwealth: A Vision for the Massachusetts Landscape. Beverley, MA: The Trustees of Reservations, 1999.
- 65 Landgon, Philip. “New Urbanisms Latest Opportunity: Housing for Soldiers and Sailors.” New Urban News. April/May 2004: Vol 9, No 3
- 66 Commonwealth of Massachusetts. Massachusetts General Laws (MGL) Chapter 40A – The Zoning Act.



- 67 Commonwealth of Massachusetts. Massachusetts General Laws (MGL) Chapter 41, Sections 81A-81J – Improved Methods of Municipal Planning.
- 68 Commonwealth of Massachusetts. Massachusetts General Laws (MGL) Chapter 41, Sections 81K-81GG – The Subdivision Control Law.
- 69 Town of Boxborough, Massachusetts. Zoning Bylaw & Subdivision Regulations
- 70 Town of Reading, Massachusetts. Zoning Bylaw & Subdivision Regulations
- 71 Town of Scituate, Massachusetts. Zoning Bylaw & Subdivision Regulations
- 72 Town of Westwood, Massachusetts. Zoning Bylaw & Subdivision Regulations
- 73 Town of Seaside, Australia: Design Guidebook
- 74 Jones, Timothy Germain. Jazz, Improvisation, and Streetscapes: Guidelines for In-fill Development. Cambridge, MIT Institute Archives, 2001.
- 75 Brown, Amy S. The Persistence of the Village in British Town Planning. Cambridge, MIT Institute Archives, 1992.
- 76 Heen, Stacy M. (Stacy Michelle) Development of a Planning Process Model for Implementation of Neotraditional Town Planning Principles in Existing Communities. Cambridge, MIT Institute Archives, 1996.
- 77 Super, Margaret P. (Margaret Pillsbury) Neighborhood Perspectives on Suburbia : An Exploration on Form, Identity and Meaning in the Contemporary Suburban Landscape. Cambridge, MIT Institute Archives, 1999.
- 78 Sundell, David E. (David Ernest) Towards the Reinvention of Public Space: Implications of the Recent work of Andres Duany and Elizabeth Plater-Zyberk. Cambridge, MIT Institute Archives, 1990.
- 79 Schonberger, Benjamin (Benjamin Paul), 1970- Locally Grown: Statewide Land use Planning in Northern New England. Cambridge, MIT Institute Archives, 2000.
- 80 Schuster, Mark J., John de Monchaux and Charles A. Riley II, eds. Preserving the Built Heritage : Tools for Implementation. Hanover, NH: University Press of New England, 1997.