Resource Book:

2

I-93 Community Technical Assistance Program

CTAP

New Hampshire Communities Planning Together

Resource Book #2
Technical Assistance and Resource Identification

CTAP: The Community Technical Assistance Program

Supporting Comprehensive growth management under the Salem – Manchester Interstate-93 reconstruction project

Antioch New England Institute (ANEI) created this document and is working under contract with Clough Harbour and Associates, L.L.P on this project.

Table of Contents

The goal of the CTAP initiative is to develop a broad and comprehensive program to meet a wide range of growth challenges.

I. CTAP Overview

New Hampshire Department of Transportation (NHDOT) is committed to a five year comprehensive Community Technical Assistance Program (CTAP) to support a region of 26 towns and cities that are in the area influenced by the reconstruction of Interstate 93. As part of this comprehensive growth management initiative, the NHDOT is interested in engaging the public and a wide range of stakeholders including local governments, the non-governmental sector, and state and regional governmental agencies.

CTAP is designed to provide technical assistance to communities in the I-93 corridor area on sound land-use planning practices. The primary purpose of CTAP is to promote beneficial growth patterns that minimize the negative effects of growth on community services, remaining open space, schools, existing traffic patterns, quality of the environment, and existing residential and commercial zones. This initiative will be a joint effort of communities, state agencies, and the non-governmental sector.

Under the CTAP program, NHDOT and its contractors will convene and facilitate a large, multi-stakeholder six-month scoping process designed to achieve consensus on how to best address growth management issues and allocate program funds. The primary outcome of this process will be the preparation of a work plan (or blueprint) that will include a set of proposed actions and a timeline for addressing growth management issues in the region.

This publication is book two of a three-part series designed to provide technical assistance and resource identification that can assist CTAP participants as they move from visioning their region's future to developing a plan of action to achieve that vision. These books examine the challenges of growth and provide an overview of the strategies and tools of proactive growth management. Case studies from New Hampshire and beyond are used to identify success stories and explore the challenges associated with these strategies. The books do not present a comprehensive overview of proactive growth management, but rather they serve as a primer to present possibilities for communities and to identify resources for further exploration.

II. Introduction: Results of the Vision Map Process and Identification of Key Areas to Address

At the CTAP Kick-off event on December 1, 2005, 85 participants representing municipalities, state and federal agencies, non-governmental organizations, and other interested parties within the 26 town I-93 reconstruction corridor came together to begin the process of mapping out a vision for the future of the region. The keystone activity of that meeting was the creation of a vision map that sought to address the question, "What do you want this region to look like in 20 years?"

Through this process, the group generated a wealth of ideas, and a vision for the region's future began to emerge. Several major themes arose, including the desire to conserve New Hampshire's traditional rural landscape, to create vibrant walkable communities, to preserve open space and the working landscape, and to plan both locally and cooperatively throughout the region. Participants then voted (with stickers) on the concepts they felt were most important for the region's future. The meeting notes from this planning event are provided in Appendix A.

CTAP Resource Book 2 will begin by providing a historical context for development in the United States and specifically New Hampshire. Some of the leading laws and statutes which have, or will, influence development patterns in the state will be addressed. This book will also discuss contemporary challenges New Hampshire faces in making decisions for the future. Book 2 will conclude and lead into Book 3 with an exploration of the concepts and strategies introduced via the vision map, particularly those areas that received the highest number of votes. Both books will offer resources for further exploration of those topics.

III. Development in New Hampshire

To better understand modern development it is important to consider several layers of historical and present day decisions and activities. This section gives a brief introduction to early land use in the United States and settlement patterns in New Hampshire. Following is a discussion of some of the driving forces impacting both how and where development occurs and a discussion on general societal trends, policies, and specific laws and regulations which have influenced New Hampshire's landscape. The section concludes with pertinent challenges facing New Hampshire communities as they work to incorporate the outcomes of past decisions into visions of the future.

A. Historical Context to New Hampshire Development [1]

The historical context of growth in New Hampshire may provide a more thorough understanding of development patterns. Although how and where development occurs today is highly influenced by laws, regulations, and technology, the foundation for where developed centers

[1] *New Hampshire History in Brief*, Wallace R. Stuart, the New Hampshire Division of Historical Resources. Retrieved from http://www.nh.gov/markers/brief.html

have emerged in New Hampshire are based on historical settlement patterns. New Hampshire has long been a state that concentrates regulating power at the municipal level, avoiding more state-centralized authority structures. This tradition is rooted in the dynamic history of New Hampshire settlement. The following is a look at how and where New Hampshire, and specifically the 26 municipalities in the I-93 reconstruction corridor, has evolved by actively responding to the ebb and flow of national trends and pressures. This section is intended to provide a framework for understanding causes and patterns of growth and development in New Hampshire and the I-93 corridor.

1. The Beginning of Land Rights in America

"The fundamental attitude affecting American land use centers around the right of the individual to own land". [2]

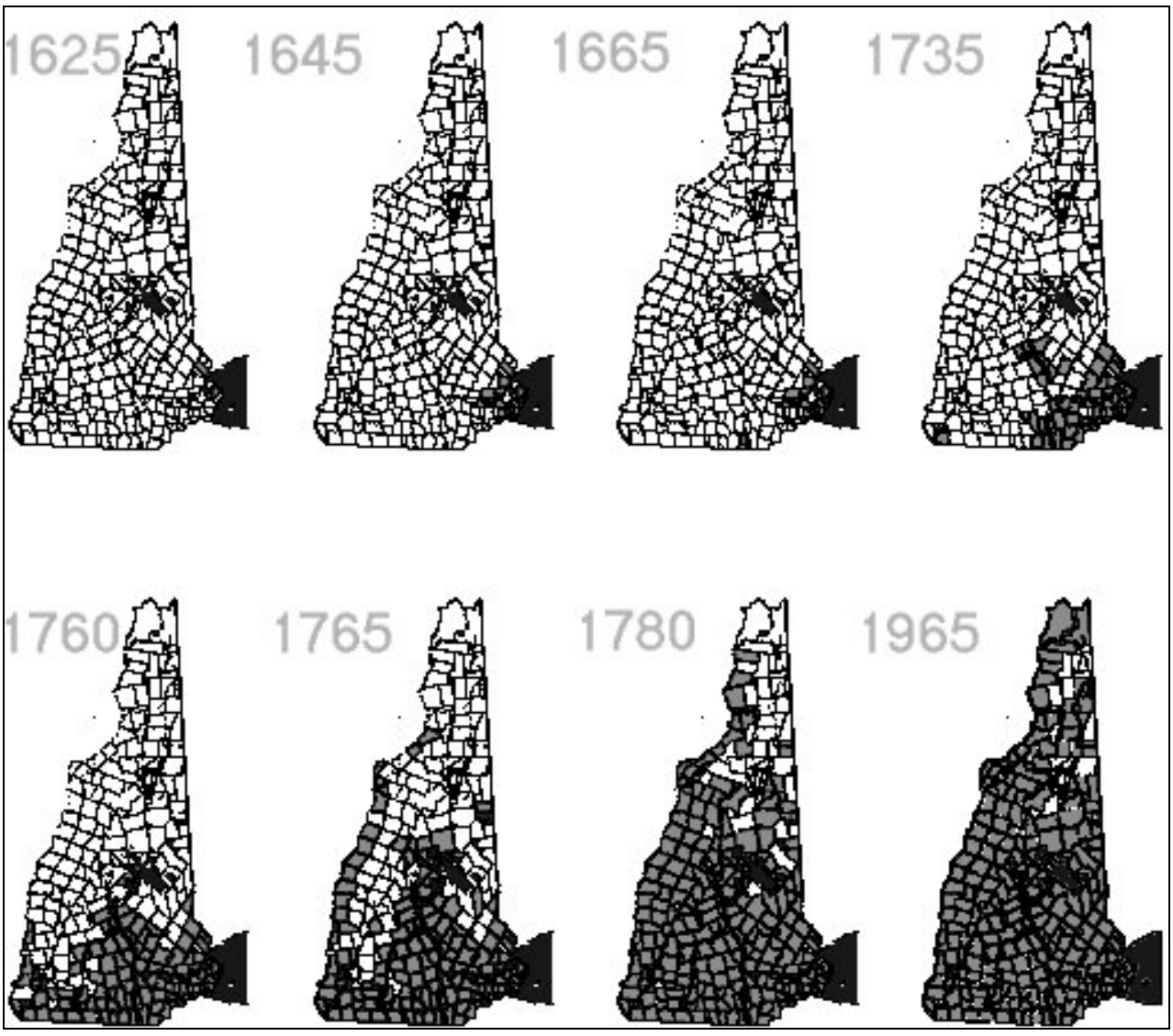
The right of American citizens to own land was a dramatic shift from the European manorial system. The discovery of the New World replaced a European land shortage with a land surplus. Anglo European settlers chose not to recreate the traditional feudal manor with its dependant serfs, but instead began a new system from which emerged a concept of universal private ownership. The simple means of transferring land from one owner to another by signing a deed reinforced the notion of individual or private land ownership. The traditional European approach to land ownership was to dictate land use. In the New World, the settler had primary say over his or her own land and choices were based on traits of self-reliance and initiative. According to the author of *Land Use in America* R.H. Jackson:

> The attitude of the settler was essentially that since it was his land and he had wrested it from the wilderness, any attempts to dictate its use would be intolerable. This attitude (that the person holding the title to land had an inalienable right to use that land in whatever way he desires) became a central part of the American ethic and remains so today. Anti-government sentiment, opposition to land use controls, exclusionary zoning - all are at least partially the result of the wide spread American belief in and interpretation of, private control of land. [3]

2. Early New Hampshire Settlement Patterns

The staunchly held value of independent land ownership and rights existed in early New Hampshire. As Picture Box 1 shows, development in New Hampshire began along the sea coast in areas today known as Dover, Portsmouth, Exeter, and Hampton. For most of the 1600's and the first quarter of the 1700's New Hampshire prospered as a merchant economy. Portsmouth became the capital and flourished as a commercial port and site of fine European imports. It wasn't until the mid 1700's that the central and western parts of the state, including the Merrimack Valley, began to be settled by farmers.

[2] Jackson, R. H. 1981. *Land use in America*. John Wiley & Sons, New York
[3] Jackson, R. H. 1981. *Land use in America*. John Wiley & Sons, New York



Picture Box 1. A chronological depiction of settlement in New Hampshire from 1625-1965. Grey areas depict new settlement. Compiled from *Settling New Hampshire: A Chronology*, produced by the New Hampshire Historical Society. Available online: www.nhhistory.org/edu/support/slides/nhtowns.ppt

The influx of migrants to the Merrimack Valley from Massachusetts, Connecticut, and Northern Ireland introduced a New Hampshire constituent with weak ties to Portsmouth. Along the coast there was a developed merchant class of day laborers, mariners, indentured servants, and even slaves. Farm towns in the Connecticut Valley were wide spread and comprised of a few sawmills and gristmills, a number of taverns, a meeting house, and perhaps a store or public school. Farmers lived in simple one-and two story farmhouses on lots they had cleared themselves. With social life and necessities based in a central location, homes and farms fanned out creating expanses of open space around compact "traditional" New Hampshire villages.[4]

[4] *New Hampshire History in Brief*, Wallace R. Stuart, the New Hampshire Division of Historical Resources. Retrieved from http://www.nh.gov/markers/brief.html

In the mid 1700's New Hampshire settlement quickly radiated out from its waterways. Driven by industrialization, dense mill-town communities sprang up along the Merrimack and Connecticut Rivers. During the 1800's the Merrimack Valley emerged as the powerful economic center of New Hampshire. The coastal regions declined and Manchester and Nashua became major textile manufacturing hubs. Concord boasted a diversified economy which, paired with its central location, made it the natural location for the new state capitol.

The prosperity of the family farm began to decay during this time of industrialization. Eventually, by the end of the 20th century, mills were finding it hard to operate in New Hampshire as well.

3. Development in the 20th Century

During the 20th century New Hampshire's economy relied heavily on tourism (e.g. antiquing, skiing, sight seeing). However, the state also made solid investments to attract new businesses that paid off as the expansion of suburban Boston stretched all the way to Southern New Hampshire.

Businesses in the later part of the 20th century grew out of the technology revolution that emerged from the educational hub of Boston and its surrounding communities. Businesses locating to New Hampshire were attracted by lower real estate costs, easy access to Boston and Logan Airport, favorable business tax climate, as well as an attractive quality of life. In a short time the state saw its population increase dramatically.

From 1960 to 2000 New Hampshire's population doubled from 606,400 to more than 1.2 million, which made it the fastest growing state in New England. Between 1990 and 2004, the state grew 17.2 % - twice the rate of the rest of New England.[5]

[5] Adapted from *New Hampshire's Changing Landscape*, 2005. Published by the Society for the Protection of New Hampshire Forests.

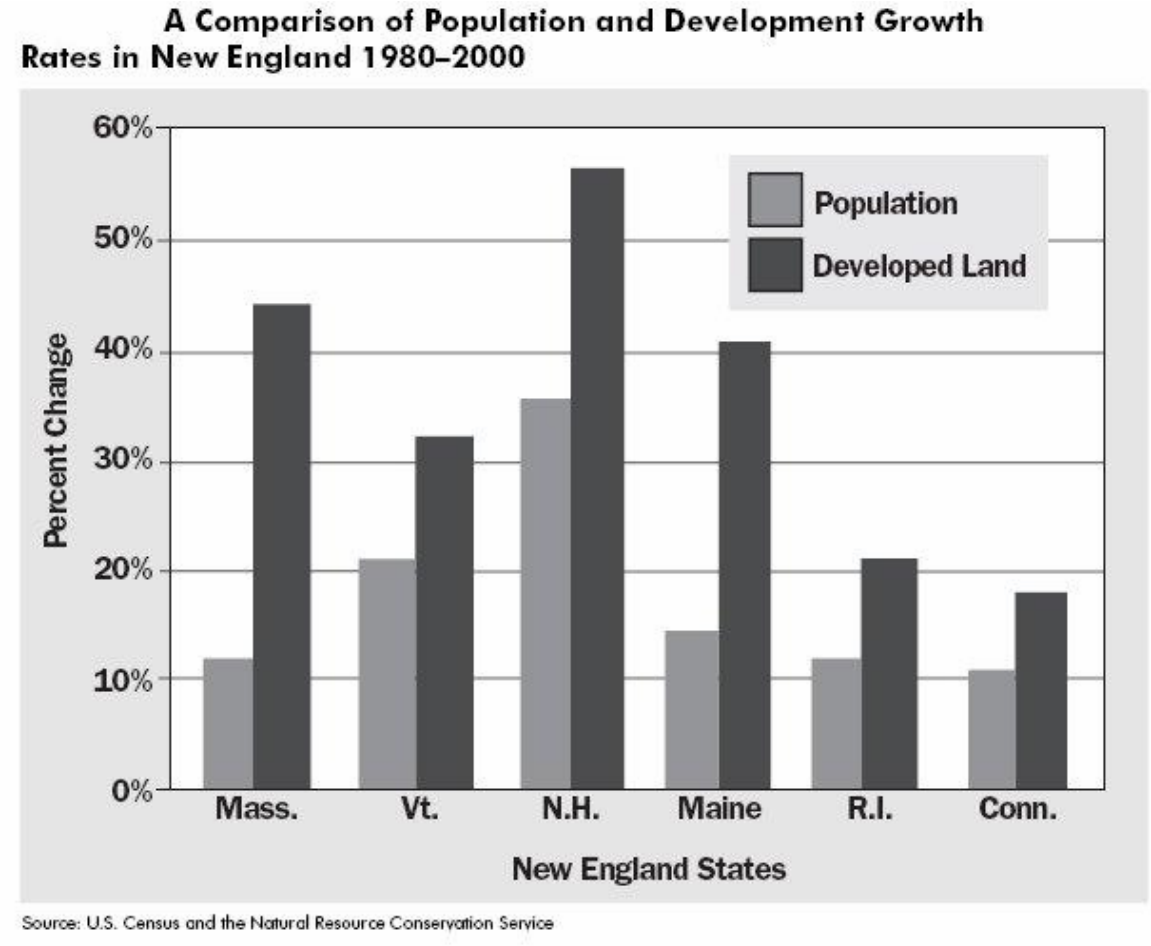


Figure 1. Population and development growth rates in New England from 1980-2000. Figure reprinted from *Community Rules: A New England Guide to Smart Growth Strategies*. Available online at: http://www.vtsprawl.org/Resources/publications/publicationsmain.htm.

Today, New Hampshire, like the rest of the nation, is faced with difficult decisions regarding growth and development. In the last 25 years the rate of development in New Hampshire has far outpaced its rate of growth (see Figure 1). This discrepancy mostly likely reflects a modern development pattern known as sprawl. It is significant to distinguish between growth and sprawl. Many would argue that sprawl is NOT growth. Rather, sprawl is the redistribution of people from one place to another so that when the rate of land development within a community is outpacing its rate of population increase, a community is experiencing sprawl symptoms and not just growth. According to Michael Lewyn of George Washington Law School, sprawl can be described by one or both of the following phenomena:

> 1) Development far and beyond a region's historic core - in other words, WHERE development occurs.
>
> 2) Development that is extremely automobile-oriented (usually due to very low density, street patterns and/or design that discourages walking) in other words, HOW development occurs.[6]

[6]Lewyn, M. 2005. Sprawl part 1: What is sprawl, and why is it bad? in B. Barros, editor. Law Professor Blogs Network.

4. Understanding Sprawl

Sprawl is not a New Hampshire phenomenon and a broader perspective can help to understand its genesis. Nationally, sprawl is seen as a development pattern which grew rapidly after World War Two. Prior to the Second World War, urban centers - like those in New Hampshire - were compact, walkable and comprised of diverse land usage.[7] There were several fundamental underlying forces which drove expansion after the war.[8] Increasing population was fueled when husbands and wives were reunited and swiftly began or continued to augment their families (the baby boom). Household incomes were boosted by plentiful jobs found in factories which had been reconverted for peacetime production.

Additionally, the buying power of a developing middle class was strengthened by the GI bill and federal mortgage loan programs such as the Farmer's Home Administration (FHA) program. Furthermore, the Federal Income Taxation system was laden with incentives which made homeownership a possibility for families that had previously only been able to rent. The federal government also invested heavily in transportation infrastructure with the creation of an interstate highway system in the 1950's. These and other improvements to transportation — including the commuter rail systems around major cities and inexpensive oil[9] — made much larger areas more accessible.[10]

During this time of prosperous expansion in the middle part of the 20th century, many cyclical and interconnected trends emerged. These trends link the historical causes of sprawl to: [11]

- Desire to escape from noxious urban industrial conditions
- Government loan programs and tax policies that favor suburban home building
- Rise of the automobile and the creation of the interstate highway system
- Desire for safer neighborhoods and better schools
- Racial prejudice

Many of these driving forces are known to have influenced both New Hampshire, and more broadly American, lifestyles and development has unfolded in a few identifiable ways:

1. Spiraling outward from urban centers
2. Radiating outward from urban centers along railroads and other transit ways
3. Areas of development separated by expansive open space and greenways known as "Leap-frog" development

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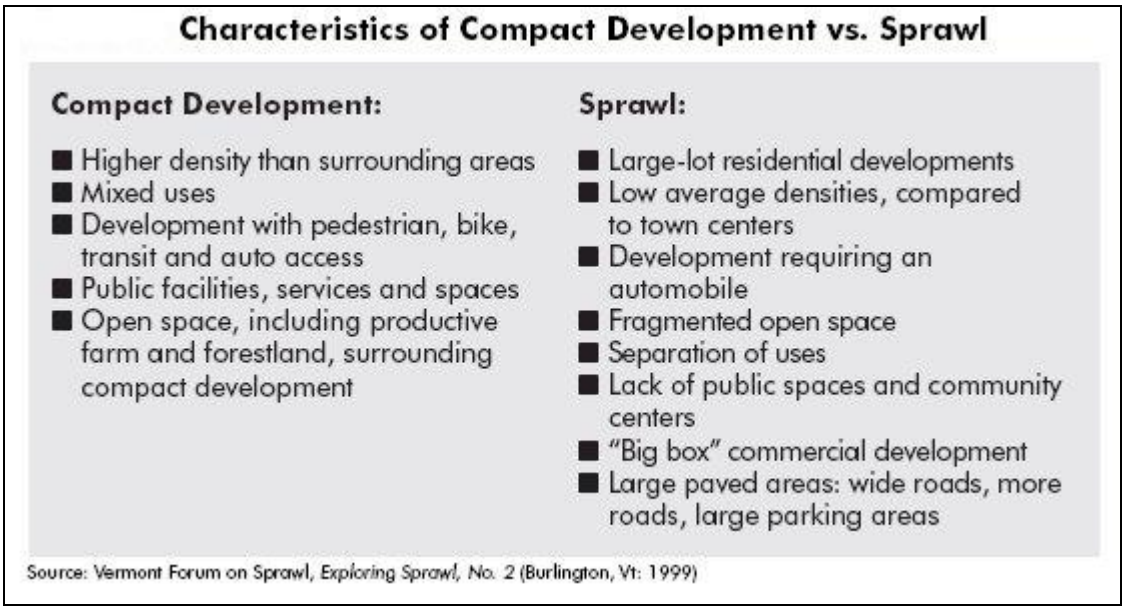
[7] From dKosopedia, the free political encyclopedia. http://www.dkosopedia.com/index.php/Main_Page

[8] Brueckner, J. K., and H.-A. Kim. 2003. *Urban Sprawl and the Property Tax*. International Tax and Public Finance 10:5-23.

[9] Smyth, J. 1992. *The Economic Power of Sustainable Development: Building the New American Dream* in B. Walter, editor. Sustainable *Cities: Concepts and Strategies for eco-city development*.

[10] Bruegmann, R. 2005. *Sprawl: A Compact History*. University of Chicago Press, Chicago.

[11] Heart, B., E. Humstone, T. F. Irwin, S. Levine, and D. Weisbord. 2002. *Community Rules: a New England Guide to Smart Growth Strategies*. Conservation Law Foundation Vermont Forum on Sprawl.



Picture Box 2. Characteristics of Compact Development vs. Sprawl. reproduced from *Community Rules: A New England Guide to Smart Growth Strategies*, Published by the Conservation Law Foundation and the Vermont Forum on Sprawl. Chapter 1, "What will become of the Land we Love?". Available online at: http://www.vtsprawl.org/Resources/publications/publicationsmain.htm

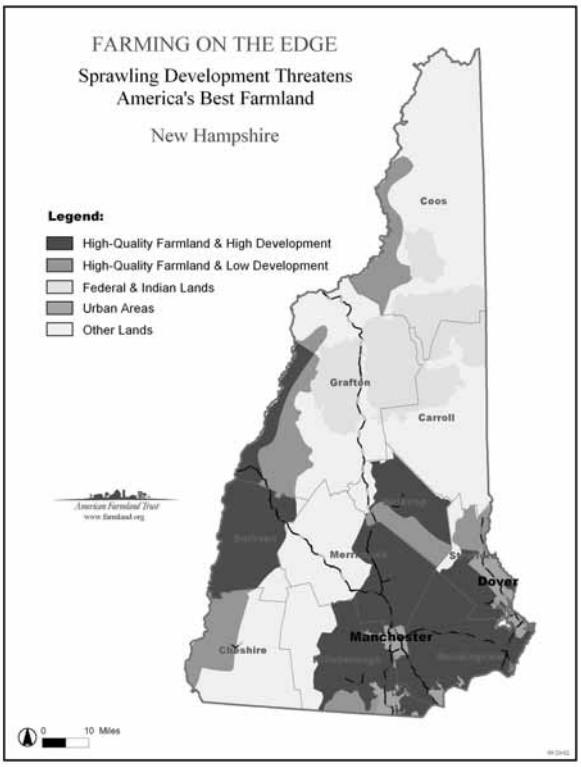
5. Recent Changes in New Hampshire

As development continues to evolve in New Hampshire, the state has been faced with several changes and resulting challenges. The Society for the Protection of New Hampshire Forests has produced a useful report titled *New Hampshire's Changing Landscape* which covers many of the changes New Hampshire has experienced in the last few decades. The report also projects where New Hampshire is heading on it current growth and development trajectory.[12] Some of the covered topics include population growth, housing construction, population density, changes in farmland, and the state of protected lands. In its 2005 update, the report provides the following statistics:

- State population is expected to grow by 358,000 from 2000 to 2025 — more than 28%. An estimated 80% of that growth will happen in the four southeastern counties — in other words, on just *one-third* of the land.
- Residential development is expanding north and west along major highway corridors.
- Land prices have risen 61% statewide since 1998, with the greatest increases occurring in the fastest developing regions.
- In 1970, 139 towns were classified as rural; by 2025, this number will have dropped by nearly half to 72.
- New Hampshire is losing about 17,500 acres of forestland every year. The remaining large forests south of the White Mountains are getting smaller, and most of our best forest soils are in the direct path of development.

[12] *New Hampshire's Changing Landscape. Population Growth and Land Use Changes: What they mean for the Granite State.* 2005. Prepared by the Society for the Protection of New Hampshire Forests. Available online: http://www.spnhf.org/research/research-projects.asp

- Only 10% of the most critical lands around public water supply wells and aquifers are protected.
- New Hampshire is losing its high quality farmland (see Picture Box 3)
- New Hampshire has conserved more than 291,000 acres in the past six years. Some 27.7% of the state is now protected, up from 22.3% in 1998.
- But 75% of all conservation land is in the northern half of the state.



Picture Box 3. High quality farmland as compared to urban centers in New Hampshire. Map generated by American Farmland Trust and available online at: http://www.farmland.org/farmingontheedge/map_newhampshire.htm

B. Driving and Defining Forces of Development

A number of factors influence both HOW and WHERE development in our communities occurs. How we grow involves neighborhood and building design and where we grow deals with the location of development.[13] Historical decisions, as previously mentioned, can have many residual influences on land use decisions and resulting patterns of development. One such example is the federal super fund law (CERCLA) which appeared in the 1970's. This law, while addressing remediation on sites with significant pollution, indirectly encouraged factories to locate well outside of urban centers in "greenfields" so that owners could not be held responsible for pollution which was caused by prior activities.[14] The relocation of these factories created dependable suburban employment, making people less dependent on urban centers for employment. Often times this type of relocation resulted in "leap-frog" development patterns.

Development in New Hampshire during the 20th century and today has been largely defined by long standing zoning laws. Recently, New Hampshire has decided to take a proactive approach to sustainable development and land use practices. These innovations are reflected in changes to

[13] *Energy and Smart Growth: It's about How Where We Build*, Translation Paper Number Fifteen. Funders' Network for Smart Growth and Livable Communities, 2004. Available online at: http://www.fundersnetwork.org/info-url_nocat2778/info-url_nocat_show.htm?doc_id=235875

[14] Bruegmann, R. 2005. *Sprawl: A Compact History*. University of Chicago Press, Chicago.

the statutes guiding and organizing land use planning.[15] New Hampshire has adopted many proactive growth management concepts into several existing statutes and has declared that "smart growth" is to be encouraged as part of its state policy on economic growth, resource protection, and planning.[16]

The following sections provide some history behind the land use legal structure in New Hampshire. This legal foundation continues to be the framework of modern development in the state. Understanding the relationship between federal, state, and local laws can help towns to better plan for their future and assist informed decision making.

1. Land Use and Zoning

> "[Z]oning is a complex and important function of the State. It may indeed be the most essential function performed by local government for it is one of the primary means by which we protect that sometimes difficult to define concept of quality of life." Justice Thurgood Marshall, dissenting in the case of *Village of Belle Terre v. Boras*s, 416 U.S. 1, 39, L..Ed.2d 767, 94 S. Ct. 1536 (1974).[17]

a. Zoning Background

Zoning became the primary tool of land use regulation in the United States by the early 1920's. Zoning burgeoned in response to pressures associated with development such as pollution, noise, odors, and physical dangers. The basic premise of this tool was to "allow municipalities to use their police power to regulate all aspects of land use."[18] An inherent right of municipalities was the right of police power to govern the community in order to provide for the 'health, safety, morals, or general welfare' of their community.[19]

Although zoning, as we understand it today, is considered a 20th century phenomenon, land use regulations have existed in New Hampshire for much longer. In colonial New Hampshire land was commonly laid out in a similar fashion to modern subdivisions. A comprehensive review of zoning and its application in New Hampshire is beyond the scope of this resource book.[20] However, it should be noted that most modern day zoning differs from 18th century land use controls in that zoning today typically regulates all property in a community as opposed to only limiting specific types of land use.

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[15] State of New Hampshire Revised Statutes. Available online at: http://gencourt.state.nh.us/rsa/html/indexes/default.asp

[16] New Hampshire Office of State Planning, 2000. *Managing Growth in New Hampshire: Changes & Challenges*

[17] Quoted in Loughlin, P. 2000. Land Use Planning and Zoning, Third Addition, Chapter 1, pg 1. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing.

[18] Jackson, R. H. 1981. *Land use in America*. John Wiley & Sons, New York. P 28.

[19] Jackson, R. H. 1981. *Land use in America*. John Wiley & Sons, New York. P 28.

[20] The historical background to zoning as it relates to New Hampshire is provided in Loughlin, P. 2000. *Land Use Planning and Zoning*, Third Addition, Chapter 1, pg 1. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing.

b. The Standard Acts

In the 1920s the U.S. Department of Commerce published two standard state enabling acts, known as the Standard Acts, which laid the foundation for planning in the United States.[21]

> The Standard Act was originally prepared for the Department of Commerce to provide state governments with a procedure for delegating state authority involving the regulation of land development to local governments. The Standard Act regarded planning and zoning primarily as local matters. The Act was also intended to preserve property rights and protect private investment from nuisances and other incompatibilities associated with neighboring properties. The Standard Act was also designed to establish a uniform national frame work of planning and zoning that could survive challenges in state and federal courts.[22]

The 1925 session of the New Hampshire Legislature adopted the provisions of the Standard Act and it has changed little since adoption. In New Hampshire, as in many other states, these acts still supply the institutional structure for planning. According to Laughlin,
"The origin of New Hampshire's enabling act is important to practitioners because its similarity to legislation in other states means that decisions in other states interpreting certain zoning provisions may have relevance to cases in [New Hampshire]."[23]

c. Euclidean Zoning

From the outset, zoning and land use controls have been challenged for their apparent unconstitutionality. In 1926, the year after New Hampshire passed the Standard Acts, the Supreme Court of the United States upheld the constitutionality of zoning through its ruling on the case *Euclid v. Ambler Realty Co*. In 1922 the small town of Euclid, Ohio divided its land into six land use districts, three height classes, and four area districts. The Ambler Realty Company owned 68 acres which fell into three districts that ranged from two-family to unlimited industrial activity. In this law suite Ambler Reality alleged that the new ordinance reduced the value of its property and violated Section 1 of the 14th Amendment to the U.S. Constitution, which protects against property being taken without due process of law.[24] Specifically, the suit alleged that the ordinance "attempted to restrict and control lawful use of land so as to confiscate and destroy a great deal of its value".[25] Professor Robert Jackson from the Geography Department at Brigham Young University describes well the implication of this case and its ruling:

> The Supreme Court ruled that communities have the power to pass and enforce laws and regulations designed to further the general welfare of the

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[21] American Planning Association (APA). 1996. *Modernizing State Planning Statutes: The Growing Smart Working Papers*.
[22] New Hampshire Office of State Planning, 2000. *Managing Growth in New Hampshire: Changes & Challenges.*
[23] Loughlin, P. 2000. *Land Use Planning and Zoning*, Third Addition, Chapter 1, pg 3. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing.
[24] Jackson, R. H. 1981. *Land use in America*. John Wiley & Sons, New York.
[25] Loughlin, P. 2000. Land Use Planning and Zoning, Third Addition, Chapter 1, pg 4. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing.

> community as part of their police power, and that zoning [is] a logical part of that power…The Supreme Court decision resolved the question of validity of zoning and indicated that the 'scope of the police power is elastic and capable of expansion to meet the complex needs of an urbanizing society'. This latter point has been the basis for increasingly restrictive controls on land use in the United States, but the former was the basis for wholehearted adoption of zoning laws in the country.[26]

The zoning ordinances which swept the country after this Supreme Court ruling have generally been referred to as Euclidean Zoning. The main characteristic of this type of zoning is that land is partitioned restrictively by type of land use and dimensional requirements. It is this type of zoning practices which have encouraged sprawl and limited dense and mixed use development.

2. New Hampshire Regulatory Powers

Today planning, zoning, and other land use regulations are explicitly enabled and guided by the New Hampshire State Law. In general, New Hampshire has been very responsive to broadening and increasing the flexibility of its state statutes as they concern land use and planning. The New Hampshire Office of Energy and Planning provides useful resources on how to locate and learn about the state land use and development laws.[27] The following sections briefly highlight some particularly relevant regulatory powers:

a. Planning Board

The Planning Board has a host of potential duties and responsibilities within a municipality. The board prepares and updates the town's master plan, and in various municipalities, the board may also be engaged in the following activities:[28]

- Prepare and amending municipal capital improvement plans
- Prepare official municipal maps
- Propose zoning amendments and facilitating public hearings on zoning issues
- Adopt subdivision and site plan review regulations
- Approve or disapprove of subdivisions and site plans, or make recommendations concerning these matters
- Administer innovative land use controls
- Issue conditional or special use permits under innovative land use controls

b. The Zoning Board of Adjustment (ZBA)

The Zoning Board of Adjustment is designed to help administer zoning regulations, particularly as they pertain to zoning appeals and the handling of variances and special exceptions to

[26] Jackson, R. H. 1981. *Land use in America*. John Wiley & Sons, New York. p 30.
[27] The NH Office of Energy and Planning can be found on the web at: of http://nh.gov/oep/index.htm
[28] Adapted from: Loughlin, P. 1992. Land Use Planning and Zoning. New Hampshire Municipal Practice Series, Volume 1. Equity Publishing Company

ordinances.[29] The ZBA ensures that there will be consideration of situations where existing zoning may impose "unnecessary invasions of private property… and all in all to provide a relief valve to allow the zoning ordinance to work."[30] According to *Land Use Planning and Zoning, Third Addition*:

> The authority of the zoning board of adjustments is exclusive and cannot be usurped by other boards such as the board of selectman. While the legislative body of the municipality can amend provisions of the ordinance or even abolish zoning as long as a zoning ordinance is in effect, relief from terms of that ordinance can only be obtained from the zoning board of adjustments and the powers of that board cannot be delegated to any other entity.[31]

c. Master Plans

According to New Hampshire state law:

> The purpose of the master plan is to set down as clearly and practically as possible the best and most appropriate future development of the area under the jurisdiction of the planning board, to aid the board in designing ordinances that result in preserving and enhancing the unique quality of life and culture of New Hampshire, and to guide the board in the performance of its other duties in a manner that achieves the principles of smart growth, sound planning, and wise resource protection.[32]

Master plans, at a minimum, must contain a vision section that guides the document and a land use section that incorporates the vision section statements into both the existing conditions of a town and its desired land use future. The vision section serves to "articulate the desires of citizens affected by the master plan" at the local, regional, and state scales, and to create principles and guidelines for action. The land use section considers a community's population, economic activity, natural, historic, and cultural resources in its proposals for future land use.[33]

Master plans may include other sections that address particular needs or issues within a community. These sections can include transportation, economic development, natural resources, housing, and several others.[34] For a full list with descriptions from the statute, see Appendix B.

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[29] Loughlin, P. 1992. Land Use Planning and Zoning. Chapter 2, pg 5. New Hampshire Municipal Practice Series, Volume 1. Equity Publishing Company.
[30] Loughlin, P. 1992. Land Use Planning and Zoning. Chapter 2, pg 5. New Hampshire Municipal Practice Series, Volume 1. Equity Publishing Company.
[31] Loughlin, P. 2000. Land Use Planning and Zoning, Third Addition, Chapter 19. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing. p 238.
[32] RSA 674:2 Master Plan; Purpose and Description Retrieved from http://www.gencourt.state.nh.us/rsa/html/LXIV/674/674-2.htm
[33] RSA 674:2 Master Plan; Purpose and Description. Retrieved from http://www.gencourt.state.nh.us/rsa/html/LXIV/674/674-2.htm
[34] RSA 674:2 Master Plan; Purpose and Description.

A town must have a master plan approved and in place before it can authorize capital improvements programs or adopt new zoning ordinances[35].

NH regional planning commissions also create regional comprehensive master plans, which address many of the same issues of a municipal master plan at the regional level. Municipal and Regional Master Plans are discussed in greater detail in the "Regional Cooperation" section of this resource book.

d. Regional Planning Commissions

In order to plan more comprehensively at a regional scale, state lawmakers created the Regional Planning Commissions in RSA chapter 36. The commissions serve as advisors to municipalities in their region to aid in planning issues. The commissions create comprehensive master plans for the development of their regions. They also compile regional housing needs assessments, and review developments of regional impact.[36] RPC's have a suite of responsibilities in addition to completing comprehensive plans and housing assessments. These duties include being involved in a variety of regional leader engagement processes, research and mapping projects, and the provision of planning, advising, and assistance to their member towns.

e. Innovative land use controls (RSA 674:21)

Innovative land use controls create new options for development planning in New Hampshire communities. The New Hampshire Office of Energy and Planning (NHOEP)[37] offers the following explanation of these controls in their publication *The Planning Board in New Hampshire: A Handbook for Local Officials*:[38]

> [Innovative land use controls (RSA 674:21) provide] communities with a wide range of options to use in their efforts to shape land development in ways that reflect the vision of their Master Plans, and to deal more effectively with growth-related issues. Using "innovative zoning," communities can adopt land use controls which allow for greater flexibility and creativity within a zoning ordinance. These controls can be used to implement more sustainable development planning principles and practices. RSA 674:21 contains a laundry-list of possible options for zoning. The list is not exhaustive, and leaves the door open for communities to develop innovative land use controls that are not listed.

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[35] From: Master Planning: Technical Bulletin 3. 2003. NH Office of State Planning and Energy Programs. Retrieved from: http://nh.gov/oep/resourcelibrary/documents/TB3.pdf

[36] From: RSA Chapter 36. Retrieved from: http://www.gencourt.state.nh.us/rsa/html/iii/36/36-mrg.htm

[37] The New Hampshire Office of Energy and Planning recently published *Planning Board in New Hampshire: A Handbook for Local Official*-a document which incorporates statutory changes enacted through the 2004 Legislative Session. This document provides information and assistance to cities and towns concerned about zoning and planning issues, as well as the duties and responsibilities of the planning board. The handbook is a guide to the organization, powers, duties and procedures of the planning board. The document in its entirety is available free online at: http://www.nh.gov/oep/resourcelibrary/HandbooksAndOtherPublications.htm

[38] *The Planning Board in New Hampshire: A Handbook for Local Officials,* New Hampshire Office of Energy and Planning.

The *Handbook for Local Officials* also introduces some of the innovative land use controls listed in the RSA. Appendix C provides descriptions of several optional land use controls as explained by the NHOEP.

3. Other Controls Affecting Land Use[39]

a. Historic District Control

> Historic preservation is part of an overall plan to promote general community welfare. The protection of historic landmarks and areas is a legitimate and recognized exercise of a town's police powers for the purpose of promoting that town's general welfare. Many municipalities have found that the creation of a historic district is a useful tool for stabilizing property values and stimulating new investment in older neighborhoods. Historic districts often create economic benefits for private owners. Public benefits are generated by an increase in the tax base. Many cities and towns have benefited from the improvement in civic image, which has accompanied preservation efforts.[40]

b. Regulations of Excavations

As New Hampshire and New England have continued to develop, excavation sites have been impacted in two ways: 1) the demand for sand and gravel for construction has increased significantly 2) the availability of sand and gravel has become scarcer (making such resources more valuable). This trend has caused New Hampshire to restrict excavations in order to protect the health and safety of the public. New Hampshire Legislature gives the power to regulate excavations directly to municipalities. It is each municipality's responsibility to develop bylaws regulating their excavations. *Land Use Planning and Zoning* discusses some of these excavation restrictions including; agricultural excavation; incidental excavation; existing excavations; and others.[41]

c. Wetlands Protection

> The stated purpose of most wetlands protection regulations generally relates to surface water pollution; ground water quality and quantity; flood protection; protection of fisheries, shellfish and wildlife habitats; and sometimes recreation and aesthetics…The New Hampshire Supreme Court has recognized that wetlands regulation is on the cutting edge between the forces of development and efforts to protect ecologically sensitive areas. The court has held that the controlling and restricting the filling of wetlands is

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[39] Adapted from Loughlin, P. 1992. *Land Use Planning and Zoning*. Chapter 2, pg 5. New Hampshire Municipal Practice Series, Volume 1. Equity Publishing Company

[40] The information in this resource book pertaining to Historic District Controls was taken directly from the following source and also gives additional information of the potential benefits of a Historical District that are beyond the scope of this resource book. For more information please see: Loughlin, P. 2000. Land Use Planning and Zoning, Third Addition, Chapter 35. p 481. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing.

[41] Loughlin, P. 2000. *Land Use Planning and Zoning*, Third Addition, Chapter 35. p 481. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing. P 501

> clearly within the scope of the police power of the state and its municipalities…Wetland regulations enjoy a special place in the pantheon of land use controls because of the environmental uniqueness and importance to public health and welfare of wetlands. Unlike many other property uses which are restricted or controlled by local or state regulation, the filling of wetlands alters the property itself and changes the basic character to the detriment of the public good. An owner land has no absolute and unlimited right to change the essential natural character of his land so as to use it for purposes for which it was unsuited in its natural state and which injures the rights of others.[42]

Land Use Planning and Zoning provides valuable background information on wetlands controls and supplies ways of defining a wetland area.

d. Private Restrictions on Land Use

Public land use restrictions are not the only influencing factors in land use decisions. Private restrictions on land use also play a significant role in how municipalities develop. These restrictions can be seen as a tool to achieve certain goals (e.g. the preservation of open space with a conservation easement) or as mediating factors in the development process. Although a thorough description of New Hampshire private land use restrictions is beyond the scope of this resource book, *Land Use Planning and Zoning* provides useful information on several of them. Some of the most common restrictions are as follows:[43]

- Restrictive Covenants
- Equitable Servitudes
- Easements
- Preservation Restrictions
- Conservation Restrictions
- Agricultural Restrictions

e. Current Use Tax System

The current use tax system has been an important instrument in preserving land and open space in New Hampshire. This system has allowed individuals to maintain intact tracts of land by way of providing tax relief when the land is guarded from development. The reduction in taxes to individual landholders has allowed many to retain their property instead of selling to developers as a result of inflated property tax values. In many communities this preserved open space has assisted in the maintenance of traditional rural character.

> The New Hampshire Current Use program was established on a statutory basis with the enactment of NH RSA 79A in 1973. The declared intention of the Current Use program is to encourage the preservation of open space, to provide an outdoor environment for work and recreation, to maintain the

[42] Loughlin, P. 2000. *Land Use Planning and Zoning*, Third Addition, Chapter 35. p 481. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing. p 481.

[43] For a brief introduction to these restrictions see the following: Loughlin, P. 2000. *Land Use Planning and Zoning*, Third Addition, Chapter 35. p 543. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing.

> character of the state's landscape, to conserve natural resources, to reduce municipal costs associated with developed land, and to encourage management of open spaces. Current use laws and administrative rules reduce property tax assessments for owners of qualified farmland, forest land, unproductive land, unimproved wetland, undeveloped land on which agricultural or horticultural crops are grown, certified tree farms, and parcels comprised of a combination of qualified lands.[44]

f. Miscellaneous State and Federal Controls Affecting Land Use

There are several other regulations beyond general zoning that can affect the way land is used at the state, regional, and local levels. These regulations include procedures for the dredging and filling of wetlands, development setbacks from shorelines, tax incentives for restricting development on large tracts of land, guidelines for establishing historic districts, and many others.[45]

Land Use Planning and Zoning provides information on regulations that affect land use in New Hampshire. Appendix D lists many of those controls as a starting point for further exploration.

4. The Influence of Public Policies on Land Use

Land and community development occurs under the guidance of numerous interconnected policies, laws, and regulations. Public policy has been central to land development patterns in the United States since its founding. Michael Lewyn of George Washington Law School suggests the following policies encouraged WHERE suburban developments emerge:[46]

- Highways that in part subsidized, and at least encouraged long-distance commuting by making travel faster and easier.
- Zoning and parking regulations, which by reducing density and constricting supply of housing in older, already-developed areas caused people to move further away from urban centers in search of newer or more affordable housing.
- Federal Housing Administration (FHA) mortgage insurance, which generally supported suburban development only from the 1930s to 1960s, but its impact was felt long after FHA policies changed.
- Public housing policies packed public housing for the poor in cities, making cities less desirable places by concentrating poverty and related social ills in cities (The HOPE VI program and Sec. 8 vouchers have helped to alleviate this problem).
- Suburban zoning that excluded lower income housing, thus keeping poorer individuals and families located in urban centers and making cities poorer and less desirable.
- Federal policies towards urban transit

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[44] *Current Use Practices in New Hampshire*. 2001. A project report for the Statewide Program of Action to Conserve our Environment (S.P.A.C.E.) by Kara L. Eddy, MBA; Andrew E. Smith, Ph.D; University of New Hampshire Survey. Available online at: http://www.nhspace.org/resources.shtml

[45] Loughlin, P. 1992. *Land Use Planning and Zoning*. Chapter 2, pg 5. New Hampshire Municipal Practice Series, Volume 1. Equity Publishing Company.

[46] Lewyn, M. 2005b. Sprawl part II - What causes sprawl, and what can we do about it? in B. Barros, editor. The Law Professor Blogs Network.

- State school assignment laws that forced children to go to school in the municipality in which they lived- which meant that city schools became more socially/racially/economically diverse, and less attractive to middle-class parents, than suburban schools.
- School desegregation case law that exacerbated the effect of school assignment law, by providing that city schools had to desegregate but not suburban schools.
- Artificial division of regions into cities and suburbs, causing cities to have a weaker tax base, under funded schools, etc.

Policies which influenced HOW we developed include:[47]

- Zoning laws that segregate housing away from commercial activity (i.e. stores, offices, and jobs) making it more difficult to walk to shops and work.
- Zoning laws that artificially reduce density, keeping residential zones far from business zones.
- Setback and minimum parking requirements that effectively require businesses and apartment buildings to be surrounded by parking, reducing residential density and making walking less comfortable.
- Wide streets that make walking uncomfortable and reduce density.
- Long blocks that reduce pedestrians' ability to cross streets.
- Minimum parking requirements that make parking free and provide incentives for cars.
- Cul-de-sac street design (often required by cities or FHA, though not always) which makes walking within residential neighborhoods difficult.

A step to proactively shift development trends is to identify specific areas that policies can target for change. As mentioned in the CTAP Resource Book 1, *Project Overview and Introduction to Proactive Growth Management*, the New Hampshire Office of Energy and Planning, in its publication "Achieving Smart Growth in New Hampshire," offered the following eight principles for Proactive Growth Management:[48]

- Maintain traditional compact settlement patterns to efficiently use land, resources, and investments in infrastructure.

- Foster the traditional character of New Hampshire downtowns, villages, and neighborhoods by encouraging a human scale of development that is comfortable for pedestrians and conducive to community life.

- Incorporate a mix of uses to provide a variety of housing, employment, shopping, services, and social opportunities for all members of the community.

- Provide choices and safety in transportation to create livable, walkable communities that increase accessibility for people of all ages, whether on foot, bicycle, or in motor vehicles.

[47]Lewyn, M. 2005b. Sprawl part II - What causes sprawl, and what can we do about it? in B. Barros, editor. The Law Professor Blogs Network.

[48] From: *Achieving Smart Growth in New Hampshire*. 2003. New Hampshire Office of Energy and Planning. Additional information on these principles available at: http://www.nh.gov/oep/programs/SmartGrowth/smart-growth/principles.htm

- Preserve New Hampshire's working landscape by sustaining farm and forest land and other rural resource lands to maintain contiguous tracts of open land and to minimize land use conflicts.

- Protect environmental quality by minimizing impacts from human activities and planning for and maintaining natural areas that contribute to the health and quality of life of communities and people in New Hampshire.

- Involve the community in planning and implementation to ensure that development retains and enhances the sense of place, traditions, and values of the local community.

- Manage growth locally in the New Hampshire tradition, but work with neighboring towns to achieve common goals and address common problems more effectively.

Once principles for growth have been identified, a next step is to create policies to assist local action. The International City/County Management Association (ICMA) has provided two useful resources that present 10 Principles of Smart Growth and 10 policies for each principle.[49] Although the 10 Smart Growth principles are slightly different from the 8 principles listed here, there are overlaps and similarities which might prove useful to practitioners.[50]

New Hampshire law provides that each municipality may develop their own land use regulations. However, regulations must be properly adopted and applied in a manner consistent with the state's land use statutes and case law. Within these parameters, there is great variety in how each municipality exercises land use authority through zoning, subdivision, site plan review, innovative land use controls, and policies.[51]

C. Contemporary Challenges[52]

The New Hampshire Office of State Planning's 1999 *Report to Governor Shaheen on Sprawl* offered a succinct summation of the state's contemporary challenges in relation to growth and the use of our land and resources:

> We are currently growing at a rate approaching 15,000 people each year. This adds vibrancy to New Hampshire. It adds jobs. It brings new ideas. It creates new economic opportunity. It also brings changes to our communities, and converts lands that were once undeveloped or used for agriculture and forestry to more intensive uses. The issue is not one of growth itself. Rather it is the nature, location, and manner of our current growth that is of concern. How can we grow, and still maintain our traditional communities and landscapes?

[49] ICMA can be reached on the web at: ICMA.org

[50] *Getting to Smart Growth: 100 Policies for Implementation* is available as a free download from a number of websites. It can also be retrieved directly from the ICMA Bookstore under their Planning/Economic Development section at: http://bookstore.icma.org/?hsid=1&ssid1=18

[51] McLane, Graf, Raulerson, and Middleton. 2004. Land Use and Development Law.

[52] The New Hampshire Office of Energy and Planning provides a useful resource library on Sprawl and Smart Growth at: http://www.nh.gov/oep/resourcelibrary/referencelibrary/s/sprawl/index.htm.

> This concern falls under many broad headings. Some call the results of unmanaged growth sprawl. Others aim at the process of dealing with the forces of development, and call for smart growth or managed growth. By whatever name, the underlying concern is that the result of unmanaged growth has all too frequently presented us with a landscape that is foreign to the scale and traditions of New Hampshire.[53]

The recent survey work of University of New Hampshire's Carsey Institute adds to the understanding of our contemporary growth and development challenges. The Institute surveyed NH community decision makers and identified the following 10 issues as most important for rapidly growing communities:[54]

Top Ten Issues of Rapidly Growing Communities:

- *Determining the economic impacts of land use choices*
- *Preserving New England character*; maintaining a sense of community
- *Growth management*; exploring strategies and model ordinances for natural resource protection
- *Leadership training ;* expedient leadership training of community decision makers
- *Conserving open space*; identifying and conserving the best open space through non-regulatory options
- *Economic development*; sustaining economic base without losing quality of life
- *Affordable housing*
- *Transportation*; Creating adequate services and systems
- Water protection; ensuring surface and groundwater protection
- Community collaboration

The priorities generated in the CTAP December 2005 Kick-off event fit into three broad categories for development in New Hampshire:

1. Social sustainability.
2. Environmental sustainability.
3. Economic sustainability.

Our contemporary challenges largely revolve around meeting the needs and desires of our expanding and increasingly mobile and technological society while balancing those needs and desires with these three levels of sustainability. The following sections introduce the NH context for sustainability and some of the challenges present at each level.

[53] The 1999 *Report to Govenor Shaheen on Sprawl* is available online at: http://www.nh.gov/oep/resourcelibrary/referencelibrary/s/sprawl/documents/sprawlreport1999.pdf

[54] From: The Carsey Institute at the University of New Hampshire, retrieved from http://cirps.sr.unh.edu/

1. Social Sustainability

New Hampshire ranks among the highest in the nation in social capital. Social capital can be defined as the attitude, spirit and willingness of people to engage in collective, civic activities. In a 2001 survey conducted by the Saguaro Seminar: Civic Engagement in America, New Hampshire ranked the highest on measures of civic equality.[55] New Hampshire residents are twice as likely as the average American to have attended at least one town or school meeting in the last year. Community involvement has been a tradition since colonial town meetings.[56] The high level of involvement in New Hampshire has been attributed to the inclusive nature of community politics. It is not just a ruling class that dictates rules and regulations but rather an interesting blend of all levels of income and varieties of backgrounds. Some contend that it is New Hampshire's propensity for small local government that helps to engage citizens and drive its high social capital.

A concern of development is that it will corrode the engaged civic fabric which helps define New Hampshire's character. For example, as community population grows, it becomes more difficult to engage members and maintain a high level of community participation. Additionally, as commuting time increases, available time for civic involvement typically decreases. Robert Putnam provides the following information regarding the impact of commuting on social capital in his 2000 book, *Bowling Alone*:[57]

- Commuters spend large amount of time in their cars – time which could otherwise be spent interacting with family, friends, or neighbors. Each additional 10 minutes spent behind the wheel is correlated with a 10 % reduction in all types of civic involvement.

- Commuters have work-based networks that compete with place-based networks. Working in communities away from home creates a spatial fragmentation between home and workplace. This can have negative impacts for community life when members must chose between being involved with one or the other network.

- Non-commuting residents have fewer competing affiliations and are more likely to participate in the life of the community.

According to the Southern New Hampshire Planning Commission, local officials have been experiencing an increasingly high burn-out rate. The primary reason provided is that residents are commuting longer distances to their jobs, some of which are outside of the region and the state. Unless they are part of the municipality's "usual suspects", a noticeable trend has been that citizens are not participating in local affairs as much as they used to unless it is a "not-in-my-backyard" (NIMBY) issue. Also, the majority of the smaller municipalities do not have a

[55] Lewin, T. 2001. *One state finds the secret to strong civic bonds*. In the "Managing Wholes: Creating a Future that Works" series. Retrieved from: http://www.managingwholes.com/nytimescivic.htm

[56] *New Hampshire History in Brief*, Wallace R. Stuart, the New Hampshire Division of Historical Resources. Retrieved from http://www.nh.gov/markers/brief.html

[57] "Mobility and Sprawl", Chapter 12 in *Bowling Alone* by Robert D. Putnam. Published by Simon & Schuster, New York, 2000.

professional planner on staff to assist with site plans/zoning reviews and processes. This has resulted in additional work and meetings for volunteer planning board members. This is also true for other volunteer boards and commissions such as the conservation commission, parks and open space, and the historic preservation commission. Furthermore, many citizens who serve on planning boards also serve other commissions or committees. If members of New Hampshire communities increasingly split their time between separate home and work affiliations it is likely that this downward trend in civil engagement will continue.

2. Environmental Sustainability

Overall, New Hampshire communities currently enjoy a high standard of environmental quality. Preserving the environment and natural resources for generations to come is imperative as any community moves toward the future. This challenge is particularly pertinent to the I-93 corridor communities as they work to manage growing populations and diminishing land resources.

The effect of growth on our natural environment is of particular concern, especially the potential impacts on our most vital natural resources: clean air to breath and clean water to drink. The growing population will likely increase air pollutant emissions associated with human activity, such as heating, electricity use, travel, and trash incineration. The dispersed nature of new development, combined with society's increased dependency on automobile travel, magnifies the effect of a growing population on air quality.

- Strategies that redirect growth toward established population centers and require minimum impact development practices can help prevent air pollution by reducing vehicle travel and increasing energy efficiency.

A growing population also increases the pressure on our water resources. As our population grows, our rivers, lakes, wetlands, and groundwater will receive increased volumes of wastewater from sewage plants and septic systems, as well as increased amounts of stormwater runoff from developed lands. Again, the more dispersed new development is, the greater the potential effect. Sprawl increases the amount of developed land that is created, which generally increases runoff, generates more pollution, and decreases groundwater recharge.

- 60% of NH residents rely on groundwater for their drinking water.[58]

- Anecdotal evidence from across southern NH indicates that groundwater levels are dropping in some areas.[59]

- About 75% of new development occurs outside of areas served by public water and sewer systems.[60]

[58] NHDES. "Managing Stormwater as a Valuable Resource: A Message for New Hampshire Municipalities and Water Suppliers." NHDES, Water Division. September 2001.
[59] NHDES. "Managing Stormwater as a Valuable Resource: A Message for New Hampshire Municipalities and Water Suppliers." NHDES, Water Division. September 2001.
[60] NHDES.

- Several lakes, rivers and streams in southern NH are impaired by contaminants linked to development.[61]

Continued growth and development also creates more pressure to develop lands containing significant habitat features, such as wetlands, large tracts of unfragmented forests, and small streams. If New Hampshire's future development is more dispersed and the less sensitive to natural resources, there will be greater potential impacts on habitat and wildlife caused by habitat destruction, fragmentation of undeveloped spaces, and human influence.

The long-term environmental health of New Hampshire depends on communities maximizing the use of existing infrastructure in existing developed areas, reducing the amount of land consumed by new development, and sustainably using our natural resources.

3. Economic Sustainability

Over the past ten years, New Hampshire has, on average, added about 10,000 jobs per year.[62] Between 2000 and 2020, the I-93 corridor communities are estimated to add about 120,550 new jobs, or an average of about 6,000 jobs per year.[63] The benefit of these new jobs for New Hampshire, and specifically the I-93 corridor communities, depends in large part on the types of jobs that are created and the nature of the new development associated with the creation of these new jobs. Business development that is directed toward established city and town centers could strengthen these centers and enhance New Hampshire's traditional development patterns. Locating new businesses in existing developed areas could also curb sprawl, reduce travel demand and traffic congestion, and support development and expansion of public transportation.

To develop a stable and sustainable economic future, New Hampshire would do well to consider the strengths of its various business sectors. Each community may have different types of economic development appropriate in the context of their vision for their community's future, their current level of development, and their particular strengths (e.g., access to major roadways, supporting existing businesses).

The ability of New Hampshire communities, particularly those in the I-93 corridor, to continue to attract beneficial economic development may depend in part on their ability to appropriately manage growth and provide for reasonable housing opportunities. New research indicates that communities that implement proactive growth management practices are not only better able to control local government costs, but also have more success at attracting new businesses while benefiting from enhanced economic performance overall.[64] However, the New Hampshire Housing Finance Authority indicates that a "lack of an adequate and diverse supply of housing is a limiting factor to economic growth."[65]

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[61] NHDES, New Hampshire Final 2004 305(b) and 303(d) Surface Water Quality Assessment, 2004.
[62] Data provided by New Hampshire Employment Security, Economic and Labor Market Information Bureau.
[63] *I-93 Manchester to Salem Expert Panel Analysis, Final Report*, December 2001.
[64] Muro, Mark and Robert Puentes. *Investing in a Better Future: A Review of the Fiscal and Competitive Advantages of Smarter Growth Development Patterns.* Discussion Paper, The Brookings Institution Center on Urban and Metropolitan Policy, March 2004.
[65] New Hampshire Housing Finance Authority, *Housing Solutions for New Hampshire*, October 2004.

Additionally, several sectors of New Hampshire's economy rely heavily on open space. Open space dependant industries can be defined by sectors which include agriculture related services, forestry, tourism and recreation, and vacation homes. Considering how these sectors contribute to the overall economy may be useful to communities as they plan. Communities which support open space dependent industries may benefit by conserving land and there by reducing development pressures.[66]

The Society for the Protection of New Hampshire's Forests produced a report in 1999 which illustrates how open space dependant industries contribute to the state's economy. Although we present these findings below, it should be noted that there are several other active sectors in the I-93 corridor municipalities:[67]

- Agriculture related activities have annual gross revenues of $413 million. Of this total, $231 million, or 56% of the total revenue, is dependent on open space as defined in this study. Greenhouse production, ornamental horticulture, landscaping and the processing of food that is produced primarily outside the state are not considered to be open space related. The total direct and indirect impact on the state economy from agriculture is $377 million and this sector generates over 5,400 jobs.

- Forestry based activities, including primary forest products, saw milling and paper manufacturing, generate almost $1.2 billion in gross revenues, all of which is open space based. When the indirect impacts are added, the total direct and indirect contribution to the state economy is $3.9 billion making it the largest contributing sector in terms of total income. The forest sector generates over 16,600 jobs.

- Tourism and recreation spending by residents and visitors was almost $3.2 billion in 1996/97, including associated eating, drinking, and accommodations. Of the $3.2 billion it is estimated that 54% of the total expenditure, or $1.7 billion, is based on open space related activities such as hunting, fishing, bird watching, hiking, skiing, and camping. When the indirect impacts are added, the total direct and indirect impact on the state economy is over $3 billion and the sector generates over 64,000 jobs.

- Second homes in New Hampshire that are primarily for vacation and recreational use generate $479 million in annual spending, all of which is open space related. This includes property tax payments, utilities, construction, repair, and renovation but not the tourism or recreation related expenditures of the owners or renters, as these expenditures are included in the tourism and recreation sector. The total direct and indirect impact on the state economy is $817 million and the sector generates over 15,000 jobs.

[66] Gross, L. E. P. 2003. *The Impact of Agriculture on New Hampshire's Economy in Fiscal Year 2002*. Institute for New Hampshire Studies

[67] *The Economic Impact of Open Space in New Hampshire*, Society for the Protection of New Hampshire's Forests. This report can be downloaded from the NH Office of Energy and Planning at: http://nh.gov/oep/resourcelibrary/referencelibrary/o/openspace/

IV. Addressing the Challenges of Growth

A. Proactive Growth Management Strategies as Defined by the CTAP Vision Map

A wealth of knowledge and ideas came out of the visioning process at the CTAP Kickoff event in December. In the following sections we will to begin to expand upon some of the areas that received the highest prioritization during that process, using CTAP-community-specific ideas to guide the exploration of proactive growth management tools and strategies.

As discussed in earlier sections, all growth planning decisions involve considerations of both where and how to grow. "Where to grow" means conceptualizing which places in a community, town, or region are best suited to accommodate additional development. Which are the places best suited for further development (e.g., proximity to existing community and development centers and transportation areas, well-drained upland soils, gentle grade, etc)? Deciding where to grow is informed by and runs parallel to identifying those places where growth and development are not desired. What are the most important natural resources that deserve protection (e.g., aquifer recharge, wildlife habitat, prime agricultural soils, flood or erosion control, etc), and where are the irreplaceable cultural resources (e.g., historic sites, community swimming holes and sledding hills, etc)? Together, identifying both where to grow and where not to grow creates a foundation for the desired look of a town or region's future. When a community decides where it wants to grow, it must consider how it will grow there. "How to grow" addresses what development will look and feel like. It considers, among other things, development density and design, use-diversification, housing needs, economic development needs, and transportation options.

Most of the goals identified in the vision map include aspects of both where and how to grow, and many also place an emphasis on the need for regional cooperation in addressing challenges. For the remainder of book 2 and all of book 3, we will examine the "where" and "how" of growth and development as informed by the CTAP vision map. We will divide these topics into the following three categories:

1. Regional Cooperation
2. Planning where to grow and where not to grow
3. Planning how to grow

We place the vision map goals and strategies into these three broad categories with the understanding that individual strategies often contain elements of all three. Regional cooperation serves as a foundation from which considerations of where and how to grow can expand, and it will therefore be addressed first. The remainder of Book 2 will begin to examine planning for where to grow and not to grow. Book 3 will explore planning techniques for deciding how to grow in desired areas.

1. Regional Cooperation

Many participants in the CTAP vision map process named regional cooperation in decision-making as a high priority for success in creating the kind of communities people want to see in 20 years. This theme emerged in the concept of an interconnected green infrastructure, for coordinated regional municipal services planning (fire, rescue, and solid waste), and in the desire for a better structure for allocating financial resources on a regional basis. There was a recognition that, as one participant described, "impacts don't end at town borders," and that cooperation will be fundamental to achieving success in planning for growth throughout the 26 municipalities in the I-93 corridor community.

The region of the I-93 corridor is somewhat unique in a planning context because it encompasses parts of four Regional Planning Commission (RPC) districts. The New Hampshire RPCs have long served the role of uniting communities to consider issues regionally and to plan beyond town borders. Additionally, the NH Office of Energy and Planning (NHOEP) is concurrently addressing planning issues in a state-wide context. NHOEP and the four RPCs in the I-93 corridor – Southern New Hampshire PC, Rockingham PC, Nashua RPC, and Central New Hampshire RPC – all serve as vital resources in the CTAP process, and each has a tremendous amount of valuable information, analysis, and program opportunities available at their respective offices and websites (see side box for their websites):

NH Office of Energy and Planning: http://nh.gov/oep/
Southern NH Planning Commission: http://www.snhpc.org/
Rockingham Planning Commission: http://www.rpc-nh.org/
Nashua Regional Planning Commission: http://www.nashuarpc.org/
Central NH Regional Planning Commission: http://www.cnhrpc.org/

In addition, many towns within the corridor and throughout the state have extensive information, experience, and knowledge in growth management and planning. State and federal agencies and non-governmental organizations (NGOs) operating within the region also offer a wide range of services and expertise that will enrich the CTAP process. The lessons learned from these municipalities, agencies, and NGOs may help identify the best use of resources for the corridor. More information is available at the project's website, http://www.rebuildingi93.com/

Because of its connectivity to four RPC regions, planning for anticipated growth in the I-93 expansion corridor will require not only looking beyond traditional town borders, but also beyond traditional regional borders. This unique coming together of communities offers opportunities for new and innovative partnerships and resource-sharing.

a. New Hampshire Planning: Local, Regional, Inter-Regional Examples

While the CTAP process is unique, there is precedent for cooperation and planning beyond traditional town and regional boundaries within the state. These activities have included the development of regional comprehensive plans, inter-regional transportation corridor studies, and planning for conservation at the landscape and watershed scales.

i. Municipal Master Plans and Regional Comprehensive Plans

Master plans are required by state law, and they have the potential to serve both as a means to foster community engagement and as a guide for future land use decisions within towns and regions. Master plans have performed these functions in many towns, but, as the Office of Energy and Planning and the Growth Management Advisory Committee pointed out in *Managing Growth in New Hampshire: Changes and Challenges*, "too often, land use regulations adopted by a community are inconsistent with the master plan."[68]

The *Changes and Challenges* report reached several conclusions that call for more comprehensive use of master plans and bring attention to the need for regional cooperation in planning efforts. The following is an excerpt of those conclusions:[69]

• Development has become a regional as well as local issue in New Hampshire, especially commercial and industrial development. Currently one community may be primarily responsible for approving a development proposal, while many other communities may also feel the impacts. "When making local planning decisions, a municipality must consider the impact of its initiatives on the entire region," argue Duany, et al, advocates for changing traditional land use planning practices.

• An effective growth management program in one community can result in increased growth in an adjacent community. Whether the adjacent community desires the additional growth or not, it may lack the resources or the inclination to manage development in the same manner. The result is often disjointed development and conflicting land use patterns within a region. One group of planning critics suggests that communities should, "Think globally, act locally, but plan regionally."

• The impacts associated with growth and development are cumulative over decades. Although a large development project may have a significant impact on a community, it is much more difficult for a community to manage growth that consists of many incremental development decisions. This is primarily due to the cumulative impacts of multiple development projects. Unfortunately, most communities never evaluate how these incremental land development decisions affect long term community land use patterns.

- Local land use planning in New Hampshire should follow the key principle that land use regulations are based on a master plan. The case studies, however, indicate a disconnect between the master plan and land use regulations. For example, a community's master plan might note that due to increasing traffic congestion certain sections of a major roadway should not be used for significant traffic-generating activities such as retail. Nevertheless, the zoning is changed and the entire roadway corridor is eventually designated for retail use. The master plan will note the need to protect key environmental resources, such as an aquifer recharge area, but regulations are never adopted. In some cases planning boards can and do adopt master plans, but may lack the wide base of support needed to implement the master plan's recommendations.

[68] New Hampshire Office of State Planning, 2000. *Managing Growth in New Hampshire: Changes & Challenges.*
[69] From: New Hampshire Office of State Planning, 2000. *Managing Growth in New Hampshire: Changes & Challenges*

These conclusions lend weight to the need for regional planning that involves a wide range of stakeholders in the master planning process, and for thinking beyond town borders when revising master plans and pursuing new development projects.

Regional Comprehensive Master Plans are a tool to address some of these challenges. The New Hampshire Regional Planning Commissions create these documents in order to "prepare a coordinated plan for the development of a region, taking into account present and future needs with a view toward encouraging the most appropriate use of land… and the wise and efficient expenditure of public funds."[70]

The Southern New Hampshire Planning Commission described the purpose of their ongoing regional master planning process as one that creates a holistic vision of the region into the future:

> The Regional Comprehensive Plan will include an overall vision of the region and address land use, transportation, public facilities and services, utilities, housing, economic development, natural resources, natural hazards, recreation, local and regional concerns, cultural and historic resources and implementation. The plan will look out 10 to 15 years into the future and identify what the region will look like, in terms of future growth, and what impacts this growth will have on the region and our communities.[71]

Regional Planning Commissions and the state Office of Energy and Planning also offer assistance for municipalities in developing their master plans. The following excerpts from NHOEP's *Master Planning* Technical Bulletin offer suggestions for improving both the master plan's content and the process of creating the document:

Pointers on Master Plans[72]

1. Use the master plan process to build community consensus and resolve conflicting interests.

2. Recruit, recruit, recruit! Use your planning board alternates, find volunteers, and build as many stakeholders as you can.

3. Assign a committee to just work on outreach - newsletters, web site, press releases. Keep the master plan in the news.

4. Try to meet deadlines and keep them realistic.

5. Take advantage of the amazing number of resources out there, but, in the end, do what makes sense for your community.

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[70] From: RSA 36:45. Regional Planning Commissions: Purposes. Retrieved from: http://www.gencourt.state.nh.us/rsa/html/iii/36/36-mrg.htm

[71] From: Southern New Hampshire Planning Commission: Local and Regional Master Plans. Retrieved from http://www.snhpc.org/Mastrpl.html

[72] From: Master Planning. Technical Bulletin 3. 2003 Office of State Planning and Energy Programs. Concord, NH. As adapted from the Pioneer Valley CD.

6. If you hire a consultant, be clear on what tasks you want a consultant to assume.

7. Keep the master plan alive! It needs to be used if it is going to be relevant. Think about creating a poster highlighting a few key points and display it in your public buildings.

8. Ask the planning board (perhaps the alternates) to prepare an annual report on the master plan.

9. And, finally, a good master plan is never finished!

What Makes a Good Master Plan?[73]

1. It presents essential data, but not too much. Keep all your back-up data in a separate appendix to keep the master plan user friendly.

2. It communicates a sense of place and an understanding of what is special about your community.

3. It puts forward goals and objectives that are capable of being translated into specific policies and actions. Avoid goals that are so general that they cannot be interpreted or applied in practice.

4. It translates these goals and objectives into implementation so that there is clear direction to the community on what needs to be done to implement the master plan.

5. It comes out of a process that solicits public input from a wide range of citizens and stakeholders, and describes the process that was used in preparing the plan.

6. It strives to balance development needs against the need to conserve and protect environmental resources.

7. It describes alternative futures and the likely consequences of alternative courses of action.

8. It tells a story and is interesting. It explains how the community is changing and what it will be like in the future if present trends continue.

In summary, master plans are intended to guide community planning in a comprehensive manner. Many communities have plans that aspire to both the "big-picture" as well as to very specific goals. Some towns have not taken steps to make sure that their land-use ordinances are

[73] From: Master Planning. Technical Bulletin 3. 2003 Office of State Planning and Energy Programs. Concord, NH. As adapted from the Pioneer Valley CD.

rooted in the goals of the town's Master Plan[74]. Such ordinances may then be challenged as lacking sufficient basis in the Master Plan. In some cases, land-use regulations are in direct conflict with the aspirations of the Master Plan goals. And in many other cases, municipal master plans have not looked beyond their borders to consider impacts to and from neighboring towns.

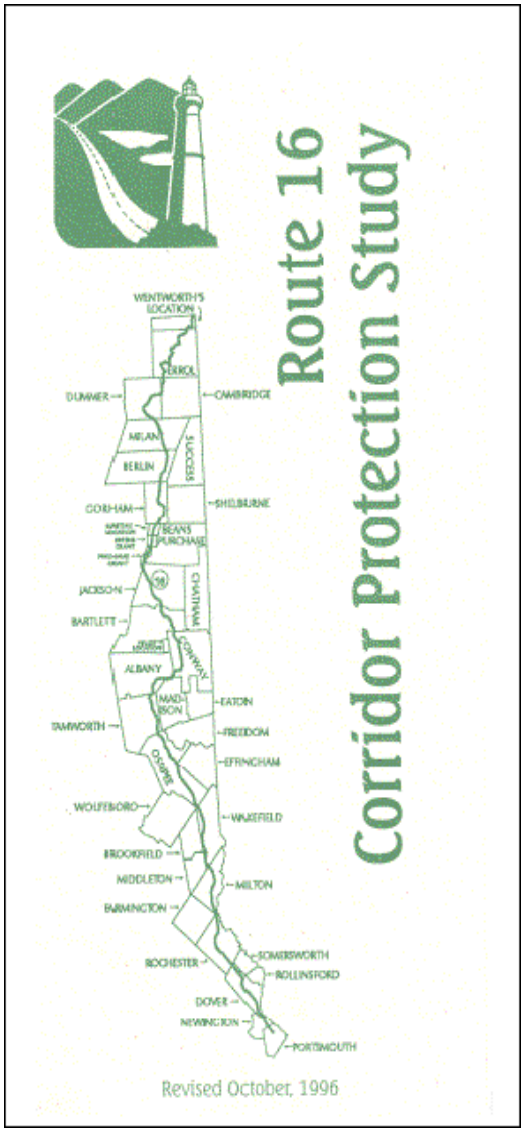
ii. Route 16 Corridor Study: Inter-Regional Planning

This study, conducted in the late 1990's, is a good example of a planning effort that crossed traditional local and regional boundaries. The following excerpt details the process and outcomes of this work:

New Hampshire's Route 16 Corridor Study[75]

1. Background

The Route 16 Corridor along New Hampshire's eastern border is a 156-mile corridor that contains 5 cities, 24 towns, and 8 unincorporated areas. The Corridor exhibits a highly diverse economy, population, and natural features. It was not surprising, therefore, that a variety of issues and opinions existed regarding the improvement of transportation along the Corridor.



2. Action

The Route 16 Corridor Protection Study, which began in 1994, was a five-year project funded with 80% federal funds and 20% state funds. The study involved local communities in the development of initiatives to improve transportation along the Corridor. The project's goal was:

To demonstrate an innovative approach to developing a long-range solution to the problem of providing an efficient transportation system that promotes economic vitality and a high quality of life for the residents of communities and visitors to the regions served by the Route 16 Corridor.

Focusing on the connections between transportation, land use, the economy and quality of life, this plan was based upon an approach that relied upon input and feedback from the people

[74] For more information on consistency between master plans and ordinances, including models on how to accomplish a master plan's goals, see: the American Planning Association's *Growing Smart Legislative Guidebook: Model Statutes for Planning and the Management of Change*, 2002, by Stuart Meck, FAICP, gen. editor.

[75] From: U.S Department of Transportation, Federal Highway Administration. Planning for Transportation in Rural Areas. Retrieved from http://www.fhwa.dot.gov/planning/rural/planningfortrans/appendixc.html#casestudy3
As adapted from Route 16: The Corridor Tomorrow, New Hampshire Department of Transportation

who live and work along the Route 16 Corridor. Regular community meetings, a quarterly newsletter, and the establishment of five working groups contributed to the success of this outreach effort. Innovative methods and advanced communication tools allowed NHDOT to help town officials, residents, business owners, and other interested citizens to better understand the issues and to identify concerns. Instructional media included videos, interactive CD-ROMs, the use of Geographic Information Systems (GIS), and other visualization techniques.

This study was distinctive because it effectively integrated components of both transportation and land use planning. Local land use decisions affect regional transportation needs as transportation improvements alter land value and regional growth.

The study was divided into four phases:

- Initial Data Collection - Data was collected concerning development regulations, traffic classification counts, the location and inventory of major recreation facilities, employers and natural resources.
- Additional Data Collection and Public Input - A computer travel model was developed for the Route 16 Corridor and a strategy was designed and implemented to encourage public involvement.
- Analysis - Data collected in the first two phases was analyzed.
- Recommendations - Both short- and long-term recommendations were developed to support the findings.

3. Outcomes

This Study confirmed that transportation, land use, access management, zoning, quality of life, and other factors drive the growth and development of the Route 16 Corridor. The Study also provided a new approach involving state-of-the-art planning tools and active participation from a diverse and large number of concerned parties. This approach was successfully adopted in two other corridor studies, four community pilot studies and a number of other community and regional projects. The study determined that "perhaps the single most important realization in developing the final recommendations was that 'we cannot build our way out of congestion.' In other words, roadway construction projects must be accompanied by other non-highway transportation improvements that can help mitigate future traffic growth."

Following is a list of initiatives that have been introduced as a result of the Study:

- A number of recommendations from the plan have been introduced to the Transportation Advisory Committees of the Regional Planning Agencies as part of the Ten Year Transportation Improvement Program emphasizing the relief of congestion, improving safety and maintenance.
- The NHDOT is expected to issue a request for proposals for an inter-city bus operator within a regional corridor from Portsmouth to Conway.
- Four community pilot studies, or master planning initiatives, within individual corridor communities help towns adopt the Route 16 approach at a local level.
- A Corridor Advisory Committee was formed to ensure that actions and lines of communication developed as a result of the study will continue at local, regional and state levels.

The model of this planning effort may be particularly useful for the I-93 expansion corridor, as it investigates the interconnections between transportation, land use, environmental health, and quality of life.

2. Planning for Where to Grow and Where Not to Grow

It is natural for any discussion of where a community wants to grow to be accompanied by a discussion of where it does not want to grow, and vice-versa. In the CTAP vision map, many participants identified the preservation of rural character as an important goal. "Rural Character" topics received 18 votes in the vision map. Rural character themes generally include preservation of open spaces and viewsheds, maintaining and enhancing working forests and farmland, and keeping vibrant traditional New Hampshire village centers. As such, the goals of preservation of rural character can serve as a guidepost for decision-making concerning where and how to grow.

To proactively manage for growth, communities may want to determine where development should and should not occur and take steps to achieve that outcome. This approach for managing growth involves several steps: First, communities (local and regional) can identify important resources, both natural (water, soil, etc) and developed (municipal infrastructure, housing stock, etc), at a broad scale. This base level of resource knowledge can then help to inform all future growth decisions. Second, communities can expand comprehensive planning efforts to specify what types of development are appropriate in different areas and take advantage of available resources (such plans can also address “how” development could be designed, which will be more fully addressed in Book 3). Finally, communities can explore techniques that enable development to be redirected to desired areas and reduce development in areas where conservation and preservation are preferred.

Many New Hampshire towns, local and state agencies, regional planning commissions, and NGOs have been addressing the conservation of rural character, natural, economic, and cultural resources, and environmental quality through a variety of means. These techniques include integrated planning projects, technical advancements for examining alternative build-out scenarios, innovative land use regulations, land acquisitions, and conservation easements. The following strategies, tools, and case studies introduce a range of approaches to identify important resource lands, to conserve those places and/or create development that is sensitive to their functionality, and to integrate these places into a coherent vision of a town, region, state, and landscape. It is not a comprehensive list of strategies and tools, but rather it aims to be a point of entry into further research and discussion.

3. Determining Where to Grow

Several themes from the vision map can be instructive for considering where communities want to grow in the future. The results showed strong support for compact settlement where community members of all incomes had walkable access to many of their needs and desires. At the visioning meeting participants were given 10 votes and asked to place their votes next to the items which were most important to them. The following vision map concepts concerning community location and feel received some of the highest number of votes from participants:

Mixed housing and business into new centers of community:	22 votes
Vibrant main streets:	21 votes
Walkable neighborhoods:	21 votes
10 minute [walk] to 10 acres [of open space]:	17 votes
Affordable housing:	16 votes

These themes point toward a desire to grow compactly in areas of traditional development with walkable access to undeveloped lands. They also signify a desire to create opportunities for all community members to live and work in community centers and neighborhoods. These results are augmented by the following vision map themes that received a fewer but still substantial number of votes: "Housing for everyone" (7 votes); "bicycle to work, grocery store, and café" (7 votes); and "denser downtown with multiple uses" (5 votes).

The results of the vision map exercise demonstrate the importance of taking stock not only of the existing development within a community, but also the social structure and interactions that make each community a desirable place to live (see pages 21-22 for a discussion on the high degree of "social capital" in New Hampshire). Determining what elements of the developed and undeveloped landscape contribute to that desirable social interaction is important when planning for future growth. Just as communities conduct an inventory or assessment of their developed lands or existing roadway network, a community can also conduct an assessment of their "social infrastructure," i.e.- the places (built and natural), events, organizations, people and interactions that maintain and enhance a community. Such assessments can direct actions the community might take in response to growth and highlight appropriate areas to focus new development. For example, those areas that are important "hubs" for the social infrastructure of a community might also be appropriate areas to focus additional growth and development.

The following example demonstrates the capacity of a social capital assessment to yield important data for future planning.

Case Study: Candia Social Capital Assessment
(excerpt from the Candia 2004 Master Plan)[76]

The Social Capital Assessment examined levels of trust and participation among Candia residents, identified how and where residents meet and interact, and considered obstacles to forming social connections in the town. The assessment found that while Candia's social capital is generally as high as or higher than other rural New Hampshire communities, residents reported somewhat lower levels of trust and markedly lower levels of informal socializing.

Although the picture is generally positive, certain trends suggest that social capital planning deserves particular attention in Candia. In particular, the expansion of I-93 threatens to flood the town with new residents without roots in the community and encourage long-distance commuting. Population growth has the potential to place pressures on public services, while

[76] Candia May 2004 Master Plan. Volume I of II. Prepared by Candia Master Plan Committee with assistance from Burnt Rock, Inc. *Associates in Community Planning.* Retrieved from http://www.townofcandianh.com/Town_Info/Land_Use_Office/0Master_Plan_Subcommittees/Candia-MasterPlanV1_2004-05-17.pdf (Social Infrastructure Map available in volume II of the master plan).

simultaneously undermining the community's ability to collectively address these problems. Ultimately this would change Candia's rural character and existing "sense of community."

Findings from the Social Infrastructure Map
The social infrastructure map provides a graphical representation of the places where residents gather for formal meetings or encounter one another by chance. The map shows that social infrastructure in Candia clusters around the Four Corners areas and other public facilities. Facilities developed through a combination of private initiative and public support are crucial to Candia's social capital. The Assessment project has demonstrated the relevance of social capital for town planning. Many Candia residents, for instance, come to know and trust their neighbors through chance encounters at the recycling center and the post office. Recognizing that these types of interactions contribute to Candia's rural character, then they deserve attention when weighing the value of changing services, (e.g., curbside trash pick-up).
The same is true for many planning decisions related to zoning, development, and transportation.

Other types of assessments that might help determine appropriate responses to growth and identify appropriate places to grow include:

- Transportation corridor studies to evaluate current and future roadway function and associated land use along the corridor. This can lead to implementation of appropriate approaches to manage development and access to the roadway and to identify necessary roadway improvements to maintain its function. (See the Rt. 16 corridor study detailed above for an example of this process.)

- Transportation system assessments to identify places where higher density development can take advantage of public transportation that is available (or support the development of new public transportation options).

- Feasibility studies to determine where public water and sewer might be provided cost-effectively.

- Community service area constraint analysis (e.g., determine the area of the community where safety services, with existing facilities, can expect to continue to provide reasonable response times as travel times increase with increased traffic congestion and development).

- Build-out analysis to determine the development potential under current zoning regulations and the impact that potential has on natural and cultural resources (e.g., determine how much a full build-out scenario would increase storm water runoff, and if the town's drainage infrastructure is designed to handle the increased flow).

4. Identifying Where Not to Grow

The top two vote-getters from the vision map addressed identifying the areas where growth is not desired (inter-connected green infrastructure: 30 votes) and taking action to conserve those places (preserve open space through conservation easements: 26 votes). Participants also proposed other goals related to identifying where not to grow, including: "preserve farmland"

(10 votes); "protect wildlife and other natural resources" (8 votes), "avoid developing shore lands" (7 votes); and "planning with natural resources in mind" (4 votes).

There are many types of assessments that can be done to identify and evaluate natural and cultural resources which may help in determining where and where not to grow within a community. These include:

- "Whole Systems" natural resource inventories (NRIs) to define the resource composition of particular lands. Resources may include soils, wetlands, vegetation, and wildlife.
- Wildlife habitat assessments to identify key areas that sustain local and regional wildlife.
- Evaluation of aquifers for their potential as future drinking water resources.
- Identification of cultural resource lands (e.g. sledding hills and swimming holes) through survey and/or community forum.
- Geographic analysis of existing open space, conserved land, watersheds, etc. to put any tract of land in a larger context of local and regional connectivity.

Although specific resource assessments are valuable, communities might want to also take a more comprehensive look at the natural systems in their town and region to better understand how their lands fit into large-scale processes such as aquifer recharge, wildlife movement, and general ecological functioning. This type of assessment is known as a Green Infrastructure assessment or plan.

a. Green Infrastructure

The results of the vision map suggest that many participants placed particular emphasis on planning at a regional scale for where to build and where to conserve. Creating an interconnected green infrastructure received the most priority votes (30) of any category at the CTAP Kick-off event.

Green infrastructure is defined slightly differently by various entities. Dr. Mark Benedict, in a 2000 publication of the American Planning Association described green infrastructure as:

> An interconnected network of conserved natural areas and features, public and private conservation lands, private working lands of conservation value, and other protected open spaces. It is green space that serves multiple purposes and is strategically planned and managed at the local, regional, and state levels.
>
> Green infrastructure planning links the needs for green and gray infrastructure [developed lands] in a more effective, economical, and livable network than would otherwise occur. It ensures that green space and grey space are placed where most needed and most appropriate. In a rural landscape, it identifies vital ecological areas and linkages in advance of growth and development. In built environments, it identifies opportunities for the restoration and enhancement of naturally functioning systems.[77]

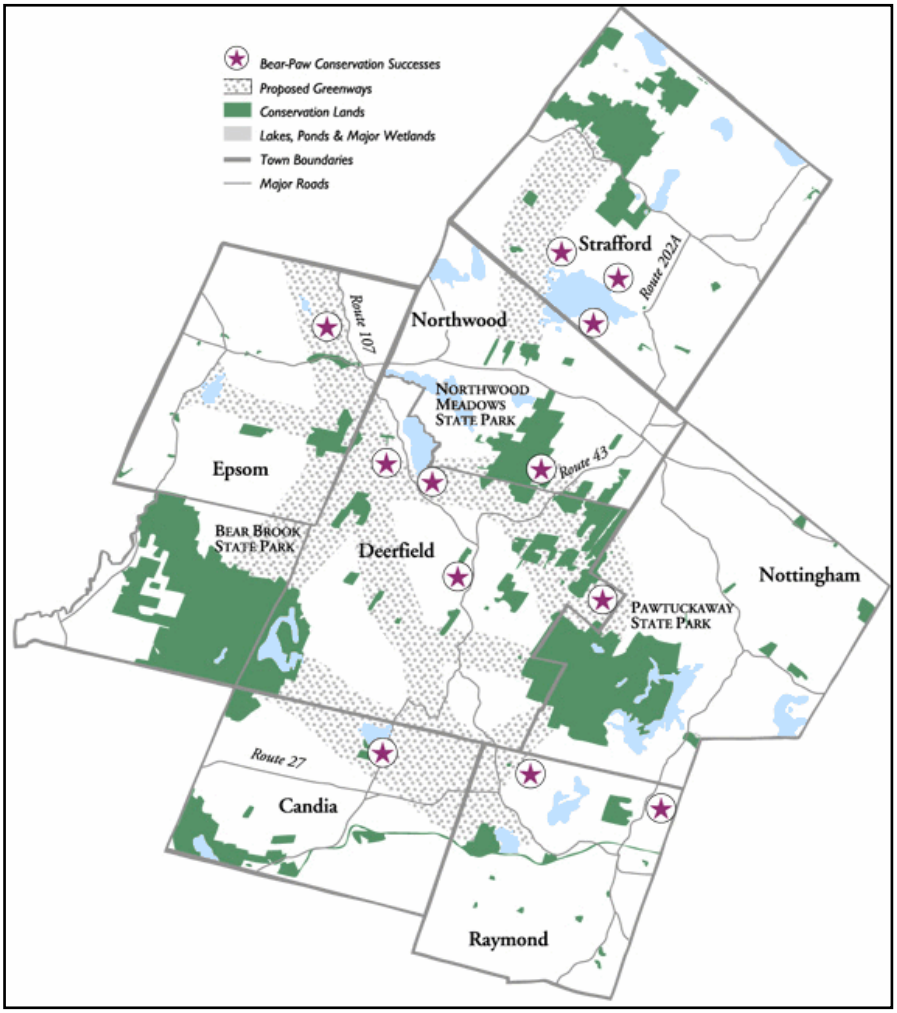
[77] Benedict, M. 2000. Green Infrastructure: A Strategic Approach to Land Conservation. American Planning Association.

This description addresses the major aspects of the green infrastructure concept. The initial output of a green infrastructure assessment is often a series of maps and a plan identifying specific areas to target for conservation and lower levels of development. This plan can include specific strategies and tools to maintain the long-term function of the green infrastructure. Such a plan might be specific to a municipality (such as a local open space plan), or for a region, a watershed, a state, or beyond. A green infrastructure assessment can serve as a foundation that informs decisions of both where and how to grow.

Case Study: Bear-Paw Regional Greenways Map:

The Bear-Paw Regional Greenway, a land trust in Southern New Hampshire, performed a green infrastructure assessment and mapping project in 2001-2003 for a portion of southern New Hampshire that included communities in the northeast portion of the I-93 reconstruction corridor.

Bear-Paw Regional Greenways Map
Retrieved from http://www.bear-paw.org/maps.html



The following excerpt from Bear-Paw explains the purpose, process, and initial outcomes of map creation:

In December 2001, Bear-Paw received a grant from the New Hampshire Estuaries Program to produce a series of state-of-the-art maps. We distributed completed sets of maps to our member towns at a Roundtable event in June 2003. They were produced with the use of geographic data in partnership with the Society for the Protection of New Hampshire Forests. Regional and town-based maps were created that identify important natural resource features including water resources, wildlife habitat areas, unfragmented lands, open lands, and conservation properties.

Tax map overlays were also included. These maps are being integrated into each town's planning board, conservation commission and selectboard meetings.[78]

Green Infrastructure for the I-93 Expansion Corridor: The Conservation Framework

State and local conservation organizations, in conjunction with state and federal agencies, have begun to create a green infrastructure assessment for the I-93 corridor, called the "I-93 Conservation Framework". This multi-organizational process, headed by the Jordan Institute, has the stated goal of:

> [Identifying] a functional network of protected and developed lands that conserves water, land, and wildlife resources in the Merrimack River Watershed, with focus on the communities in the I-93 region, to guide both land protection priorities and conservation-based land use ordinances, regulations, and voluntary development practices.[79]
>
> Green infrastructure illustrates where different levels of protections might be appropriate for different types of developing landscapes, forestry and agriculture, recreation, water supply, and wildlife corridors. This approach helps balance New Hampshire's need for innovative conservation strategies with property rights, and allows local towns the opportunity to determine a growth path that provides the relationship to nature that is the basis of 'rural character.'[80]

Initial planning maps and other Conservation Framework resources should be available in 2006 to assist I-93 communities that are interested in working toward a regional green infrastructure. More information on this project is available from the Jordan Institute.[81]

Once important resource areas are identified, communities have a host of strategies and tools available to conserve land or minimize the impact of development in those areas. Some of those tools are described in the next section.

b. Implementing a Growth Plan: Redirecting Where Development Occurs

There are many techniques and approaches available to communities that wish to redirect future growth in their communities to enhance existing developed areas, create new areas of focused development in appropriate locations, and reduce development pressures on important natural systems and undeveloped lands. There are broader approaches that can redirect development at the community or regional level, such as village development, nodal development, infill development, transfer of development, and conservation or natural resource zoning. There are also site-specific approaches that can minimize the development impact on an individual parcel, such as open space or conservation subdivision design and conservation easements. Most of these approaches establish specific guidelines for a region or town to preserve significant natural or cultural values, and all zoning ordinance changes are contingent upon having an accepted

[78] From: Bear-Paw Regional Greenways: Maps. Retrieved from http://www.bear-paw.org/maps.html
[79] From: A Conservation Framework for the I-93 Region. The Jordan Institute. Concord, NH.
[80] From: I-93 Conservation Framework Overview. The Jordan Institute. Concord, NH.
[81] The Jordan Institute's website is http://www.thejordaninstitute.org/

municipal Master Plan. In an effort to spur people's thinking about what is possible, the following pages introduce just a few of the many approaches to redirecting future development and improving current developed areas.

i. Transfer of Development Rights and Transfer of Density

Transfer of Development Rights (TDR) is a market-based approach to concentrating development and conserving open space. With this approach, residents and developers are able to transfer development rights from one area of their community to another. This technique enables towns to conserve open spaces in the areas where growth is least desired, while also increasing density in areas where additional growth is preferred.[82] Development rights are treated as "development credits," and landowners can buy and sell credits in a market environment. Areas in town where landowners can reduce density and *sell* development credits are called "sending areas" and areas where landowners can increase density and *purchase* development credits are called "receiving areas."[83]

For example, if a community wanted to reduce development in a particular area of town for its drinking water protection, it could chose to create a TDR ordinance that would allow owners of land around the drinking water resource to sell development credits to landowners in an area of town designated for further development. The receiving area might be a village center that could accommodate higher density.

TDRs can help shift the burden of protecting open space from municipalities, NGOs, or willing donors by creating a commodity from development rights and allowing them to be bought and sold in the marketplace. The transfer of a development right then becomes an investment for both buyer and seller, a "win-win" in the right situation. It allows for the sellers to realize the value of development potential on their properties without having to build, while allowing buyers to increase the development potential of their properties.

A simplified variation on this approach is a Transfer of Density program. Under this approach, developers in areas marked for more intensive development pay a fee to build at a higher density. The fees paid are then used to purchase development rights in areas targeted for conservation. This approach is simpler in that the transactions can occur independently, but with the same outcome as a Transfer of Development Rights program.

Some areas of the country have had great success with these tools. The following case study shows how TDRs can be used to maintain active farmland in a rapidly-developing environment, and it offers some insights into how to help create a robust transfer market.

[82] Pruetz, R. 1999. Transfer of Development Rights Update. APA National Planning Conference. Retrieved from http://www.asu.edu/caed/proceedings99/PRUETZ/PRUETZ.HTM#INFO

[83] For a more thorough introduction and overview of TDRs, visit http://www.state.me.us/spo/landuse/docs/tdrintro.pdf

Maryland Transfer of Development Rights Program:[84]

Montgomery County, Maryland, has an impressive record of maintaining a critical mass of agricultural land in an agricultural reserve through rural density transfer zoning that allows for the transfer of development rights (TDR). TDRs enable landowners in the agricultural reserve to sell their development rights to landowners in a receiving area that is designated for growth. In a county that has undergone explosive housing development in recent decades, 70,000 acres of farmland still remain — enough to support a healthy agricultural economy.

Prior to adoption of the county's 1980 Functional Master Plan for the Preservation of Agriculture and Open Space, an average of 3,000 acres of farmland was developed each year; from 1980 to 1998, a total of just 5,500 acres has been developed. The plan created the 93,000-acre agricultural reserve, where land may be developed at a density of one lot per 25 acres. In addition to 70,000 acres of farmland, the reserve includes 20,000 acres of publicly-owned parkland and/or previously developed rural villages.

Through TDRs, landowners in the reserve can sell development rights at the rate of one TDR per five acres for development in receiving areas that have been designated for growth. Thus, instead of public or nonprofit entities purchasing conservation easements in the agricultural reserve, other landowners purchase TDRs so that they can build in a growth area at a higher density than base zoning would allow. To date, TDRs, state programs, and county purchases of development rights for 6,268 acres have conserved more than 53,000 acres of farmland in the reserve. The County Agricultural Preservation Advisory Board is working to protect the remainder with easements.

Montgomery County created a TDR bank to buy TDRs and sell them to developers and private landowners. Such public TDR banks help maintain minimum prices for TDR credits, provide buyers when the market is slow, and keep the TDR market competitive. They also can facilitate the transfer of credits where the sending and receiving areas are in separate jurisdictions.

Merely enacting a TDR ordinance, however, does not guarantee active trading and success. The Maryland case study was successful in part because of the establishment of a TDR bank that helped facilitate purchases and keep prices competitive. As Pace Law School's Land Use Law Center explains, TDR programs do not thrive without sufficient community engagement and consensus-building around the need for such a program:

> Whether the goal is historic, ecological, or agricultural preservation, it is critical for those people who will be affected by the TDR program to understand the goal and to agree on the need to take action. If the community cannot agree on the necessity of a TDR program, they will not support it… [A] community visioning will invest members

[84] From: Wells, B. 2002. Smart Growth at the Frontier: Strategies and Resources for Rural Communities. Northeast-Midwest Institute. As adapted from: "Suburban Harvest," by Arnold Berke. *Preservation*, January/February 2002. page 58, and *Linking Brownfields Redevelopment and Greenfields Protection for Sustainable Development*, Great Lakes Commission, Ann Arbor, Michigan, June 2001.

> of the community with a sense of involvement in the process and ownership of the program it produces. If property owners feel the TDR program is their program, they are more likely to become involved in the market.
>
> In a more active market, owners of TDR credits are likely to receive a fair price. As credits increase in value, holders of credits will be eager to participate in the program as they perceive the value of their credits to be commensurate with the profits they have foregone by not developing their property…Property owners and developers are slow to place faith in TDR programs and as a result, TDR credits often remain undervalued. The biggest challenge therefore, to implementing a successful TDR program is inspiring participation and active trading in the TDR market.[85]

This land use tool has been little-used in New Hampshire. As of January 2005, three New Hampshire towns – Bedford, Dover, and Lee – had a form of a Transfer of Development Rights ordinance,[86] and neither Lee nor Bedford have used the mechanism yet.[87]

ii. Nodal Development

Nodal development zoning is used to focus development in a specific and limited area rather than along the roadway. This is done to prevent "strip development," which is often characterized as sprawl. Nodal development zoning also works to preserve a more rural, open countryside character along a corridor between the nodes of development.

Often a node is an existing village or town center, but also might be a new area of development, such as a major crossroads. In the later case, a nodal development approach provides a method for accommodating new commercial and retail development in a community with minimum impact on the character of the community or the transportation network.

Nodal developments reduce the number of turning movements along a roadway, thereby helping to maintain the efficient function of the roadway. Nodal developments also make it easier for people to access multiple destinations by walking, rather than multiple short car trips.

Example: Town of Cornish: Nodal Zoning[88]

> The Town of Cornish, located along State Highway 12/12A/10 has developed a zoning ordinance that creates nodal village districts at two of its village centers off this corridor: Cornish City and Cornish Flat, a smaller hamlet.
>
> A mix of residences and certain businesses are allowed by right, such as banks, antique or craft stores, and service establishments. Home occupations and cluster development are also allowed. Cornish recently amended its ordinance to

[85] From: Stinson & Michael. 1996. The Transfer of Development Rights. Pace Law School Land Use Law Center. Retrieved from http://www.law.pace.edu/landuse/tdr.html
[86] Transfer of Development Rights. NHOEP. Retrieved from http://nh.gov/oep/resourcelibrary/referencelibrary/m/mlurdatabasereports/tdr.htm
[87] White, K. pers. communication 1/26/05, and Cox, L. pers. communication 1/26/05.
[88] From: Sprawl and Smart Growth Choices for Southern New Hampshire Communities. 2002. Southern New Hampshire Planning Commission

allow "expanded cottage industries," home occupations up to 5,000 square feet along state highway frontage. Greater residential densities are allowed in the village than are permitted in the Rural Zones.

The zoning ordinance was designed to support the desired land use pattern for the entire community. Growth has followed the original settlement pattern, with little inappropriate development and no strip development along the state highway corridors.

This is a good example of using innovative zoning techniques to help curb sprawl and inappropriate development, while facilitating traffic movements along an adjacent state highway.

iii. Overlay Districts

Overlay districts are commonly used throughout the state to provide regulations to address the needs of a particular resource, such as drinking water, farmland soils or historic areas. These districts are laid on top of existing zoning regulations, and allow for localized criteria within the larger zoning framework of the community.

Overlay districts can be used to apply guidelines to a wide range of resources. Towns in the southern New Hampshire planning region are currently using overlay districts to guide development in the following resource areas: Drinking water zones, wetlands, steep slopes, agricultural lands, village, open space,[89] and waste water treatment zones.

A wetlands overlay district, for example, allows for specific zoning in the scattered places throughout towns where significant wetlands are located that compliment existing zoning (see *Land Use Planning and Zoning* for wetlands definitions[90]).

Several towns in the Southern New Hampshire planning region have wetlands conservation or overlay districts. Taken as a composite, the purpose statements of these ordinances describe the following goals:[91]

- Control and guide the use of land areas which have been found to be subjected to high water tables over extended periods of time;
- Prevent the destruction of, or significant changes to, natural wetlands which provide flood protection;
- Prevent the development of structures and land uses on naturally occurring wetlands which could contribute to pollution of surface and groundwater by sewage or toxic substances;
- Protect unique and unusual natural areas;

[89] From: Sprawl and Smart Growth Choices for Southern New Hampshire Communities. 2002. Southern New Hampshire Planning Commission, and Priest, D., personal communication. 1/18/05.
[90] Loughlin, P. 2000. Land Use Planning and Zoning, Third Addition, Chapter 35. p 481. New Hampshire Municipal Practice Series, Volume 15. Lexis Publishing. p 481.
[91] From: Sprawl and Smart Growth Choices for Southern New Hampshire Communities. 2002. Southern New Hampshire Planning Commission.

- Protect wildlife habitats, travel ways, and maintain ecological balances;
- Protect potential water supplies and existing aquifers and aquifer recharge areas;
- Prevent expenditures of town funds for the purpose of providing and/or maintaining essential services and utilities which might be required as a result of misuse or abuse of wetlands;
- Encourage those low-intensity uses that can be harmoniously, appropriately and safely located close to wetlands.

Other overlay district guidelines from around New England may be helpful in exploring the different methods of achieving the goal of protecting a particular resource. For example, both Norwich, VT, and Topsham, ME have an aquifer protection overlay district, but they apply different regulations to achieve their goals of groundwater protection. Norwich requires that residential development in the district does not create more than 10% impermeable surfaces on a given parcel, and that development be granted by special permit only. Topsham sets a performance standard for septic wastes concentration in its district that, if met, allows for a higher residential density. Norwich limits density in their district to one residence per five acres, while Topsham allows one dwelling per acre, with the potential to increase density through the aforementioned performance standards.[92] These ordinances are tailored to fit the needs and realities of each community.

iv. Open Space Zoning / Cluster Development / Conservation Subdivision Design

Open space or cluster development is a tool that can be used to increase the density of developments while at the same time limiting the amount of land consumed by them. It allows for parcels to achieve maximum build-out potential, but only on a fraction of the overall property. Significant acreage is left as open space that would otherwise be built upon with conventional zoning.[93]

This technique has several names: "Open space development," "cluster development," and "conservation subdivision design," generally concern individual development projects, while "Open Space Zoning" often refers to the district where cluster developments are allowed, encouraged, or required by the municipality.

Planner Randall Arendt, a pioneer in Open Space Zoning and Conservation Subdivision Design, described the benefits of using open space zoning to achieve open space protection without undue burdens to developers and landowners.

> The beauty of open space zoning is that it is easy to administer, does not penalize the rural landowner, does not take development potential away from the developer, and is extremely effective in permanently protecting a substantial proportion of every development tract. It does not require large public expenditures (to purchase

[92] From: Heart B, et al. Community Rules. A New England Guide to Smart Growth Strategies. Conservation Law Foundation. Vermont Forum on Sprawl.

[93] From: Arendt, R. 'Open Space' Zoning: What It Is & Why It Works. Planners Web Planning Commissioners Journal. Retrieved from http://www.plannersweb.com/articles/are015.html

> development rights), and allows farmers and others to extract their rightful equity without seeing their entire land holding bulldozed for complete coverage by house lots.[94]

Conservation subdivision design goes beyond the simple goal of clustering buildings together and maintaining a portion of the landscape in natural, open space. This innovation in suburban development emphasizes the preservation of rural character and ecological viability of natural landscapes. Under a conservation subdivision design approach, development is purposefully directed away from valued resources: The natural resource characteristics of the site determine the layout and design of the new development.

The New Hampshire Office of Energy and Planning, in its publication "Cluster Residential Development," described the considerations that should go into creating such an ordinance. The following excerpts from that work address a few particularly important factors:

> Cluster development allows lots smaller than those specified within the zoning ordinance, provided that the land saved is devoted to permanent open space, and that the number of lots remains essentially the same as in a conventional development.
>
> A cluster ordinance should clearly articulate the purpose of the cluster provision and establish the minimum standards required. These standards may relate to basic requirements such as density, setbacks and perimeter buffer, road requirements and the amount of open space to be left in common ownership and should also address the legal mechanism by which the open space will be permanently protected.
>
> The municipality's master plan should present the community's goals for open space preservation and should delineate areas of unique ecological or scenic value, so that it provides the basis for the zoning ordinance requirements for open space and conservation of significant natural features.[95]

Many towns in New Hampshire have forms of open space or cluster development ordinances. Several towns are now moving to implement the more comprehensive conservation subdivision design approach. Some NH communities, such as Durham, now require the open space/cluster/conservation subdivision design approach for all new subdivisions. Others, such as Dover, require that subdivisions in specific areas targeted for conservation use this approach.

[94] From: Arendt, R. 'Open Space' Zoning: What It Is & Why It Works. Planners Web Planning Commissioners Journal. Retrieved from http://www.plannersweb.com/articles/are015.html

[95] From: Cluster Residential Development. Technical Bulletin 4. 1989. New Hampshire Office of Energy and Planning.

The following case studies illustrate some successes of this land use tool in New Hampshire:

The Hills at Crocket Farm, Stratham[96]

Stratham's innovative cluster housing ordinance provides density bonus incentives for plans that preserve 50 percent or more open space, grant public pedestrian access, or protect and provide for agricultural use of valuable farm land. [The] clustered housing project of 23 single-family homes and 52 attached (duplex and triplex) units allows for smaller lot sizing, [and] community water and sewer.

One hundred and four of the total 142 acres will remain as open space, including 40 acres of wetlands and 58 acres of usable open space. Seventeen acres of fields will remain in agricultural production, with the potential for an additional four acres. Sixteen and a half acres will become a forest management area.

Forested areas and open farm fields are protected by conservation easements and surround the housing. Trails will provide for walking and horseback riding. An active recreation area will be constructed at an existing pond.

Town of Weare, New Hampshire[97]

The Town of Weare is located about 16 miles west-northwest of the City of Manchester. Weare's population increased from 3,232 in 1980 to 7,776 in 2000, or about 140%. Weare was the fastest growing community within the SNHPC region in percentage increase. The town has recently completed the development of an Open Space Plan, which will help guide future open space preservation.

WEARE: HOIT MILL SUBDIVISION

Date of Approval: February, 1998
Dwelling Units: 18 Apartments; 18 Single Family Homes
Open Space Preserved: 51 Acres
Open Space Access: Easily Accessible
Open Space Management: Property Owners/Conservation Easement

Following is selected language from the Cluster Housing section of Weare's zoning ordinance:

- Cluster housing. Purpose and Intent: The purpose of cluster housing development, and to which purpose any such development must adhere, are the following:

- To promote the conservation of the natural environment and the development of community uses in harmony with the natural features of the land.

[96] From: Achieving Smart Growth in New Hampshire. 2002. New Hampshire Office of Energy and Planning.
[97] From: Sprawl and Smart Growth Choices for Southern New Hampshire Communities. 2002. Southern New Hampshire Planning Commission.

- To establish living areas within the town that provide for a balance of community needs such as diversity of housing opportunities, adequate recreation and open space areas, easy accessibility to these and other community facilities, and pedestrian and vehicular safety.

- …At least fifty percent (50%) of total tract area exclusive of public right-of-ways shall be set aside as open space uses covenanted to be maintained as permanent "open space" in private cooperative/non-profit ownership. Open space within a cluster development shall be protected by recreation and conservation easements and shall be maintained as permanent open space. Such common land shall be restricted to open space uses…Open space acreage shall be contiguous to the greatest extent possible.

Challenges of Open Space Zoning / Cluster Development

The case studies above show cluster developments can successfully protect functional open space. But establishing cluster developments without sufficient consideration of open space connectivity, buffer regulations, and specific requirements for the open land (such as minimum percentages of total lot acreage) can lead to developments that don't resemble the goals of a cluster ordinance. The Growth Management Advisory Committee and the New Hampshire Office of Energy and Planning (NHOEP) addressed this in their conclusions to the 2000 "Changes and Challenges" report:

> The intent of a cluster ordinance may be to preserve undeveloped land and alter overall land use development patterns, but too often local cluster development regulations conflict with that intent.
>
> Communities confronting rapid growth are often urged to adopt regulations that permit the clustering of houses on a smaller portion of a site developed for residential usage, in order to preserve other areas of the site as open space. Too often, the protected open space land has no relation to an overall community open space conservation plan, and ends up isolated, unusable, or of little conservation value. For example, local regulations requiring a buffer around a cluster development can cause most of the preserved open space to be devoted to narrow strips unrelated to the town's conservation or recreation goals.[98]

This conclusion reinforces the recommendations in NHOEP's "Cluster Residential Development" bulletin that communities should articulate clear goals for the town's open spaces and significant natural features. In so much as is possible, cluster developments can be designed to meet regional open space goals, particularly in the context of wildlife connectivity and large-scale ecological functioning. It should be noted that some regional and municipal decision-makers have also found it necessary to hire engineers responsible for monitoring the construction of cluster developments to ensure compliance with all relevant conditions.

[98] From: Managing Growth in New Hampshire: Changes & Challenges. 2000. New Hampshire Office of Energy and Planning, in conjunction with The Growth Advisory Committee

v. Conservation Easements

A conservation easement is "a permanent, legally binding agreement between a landowner and a qualified conservation organization or public agency that restricts use of the land to protect its significant natural features."[99] As such, it is a tool that protects open space while leaving lands in private ownership and on municipal tax rolls.

Conservation easements are one of the most common and successful tools used to protect land in New Hampshire. As of 2003, New Hampshire land trusts had conserved over 119,000 acres state-wide using conservation easements.[100] State and local agencies also hold easements on significant acreage.

Easements are negotiated exclusively between the landowner and qualified conservation organization or public entity, and are tailored to particular pieces of land. In general, they are created to restrict development and protect a property's significant natural features and functions. Agricultural and forestry practices are typically allowed. A landowner may, in certain situations, reserve particular rights, including the option for a building lot(s) or other considerations. Public access may be incorporated into the terms of an easement but are not required.

Easements may be donated or sold by landowners to a land conservation organization or public agency. These entities are responsible for monitoring the properties to ensure the purposes and restrictions of the easement are being upheld.

Often the lands that go into conservation easements in New Hampshire have previously been enrolled in the state's current use program. When this occurs, there is little or no change in the property taxes paid on that land.[101]

A number of conservation organizations with expertise in land conservation and easement structuring work in the I 93 corridor region. These organizations can be resources for towns or individuals interested in pursuing easements, and they include:

The American Farmland Trust: http://www.farmland.org/
The Society for the Protection of New Hampshire Forests: http://www.forestsociety.org/
The Nature Conservancy: http://www.nature.org/
The Trust for Public Lands: http://www.tpl.org/
The Rockingham Land Trust: http://rockinghamlandtrust.org/
Amherst Land Trust: http://www.amherstlandtrust.org/
Bear Paw Regional Greenways: http://www.bear-paw.org/
Bedford Land Trust: http://www.bedfordlandtrust.org/
Five Rivers Conservation Trust: director@5rct.org
New England Forestry Foundation: http://www.newenglandforestry.org/
Nichols-Smith Conservation Land Trust: http://www.nsclt.org/pages/1/index.htm
Piscataquog Watershed Association: http://www.mv.com/ipusers/pwa/

[99] From: Lind, B. 2005. Conserving Your Land: Options for New Hampshire Landowners. Center for Land Conservation Assistance. Concord, NH.
[100] From: 2003 Land Trust Alliance Census Tables. Retrieved from http://www.lta.org/census/census_tables.htm
[101] Conservation Easements Explained: Upper Valley Land Trust. Retrieved from http://www.uvlt.org/html/cons_eas_expl.html

5. Economics of Open Space

Open space contributes to or directly underpins the health of several sectors of New Hampshire's economy[102]. Forestry, agriculture, tourism, recreation, and second-home development all rely on a landscape that contains large tracts of undeveloped land. In 2000, the New Hampshire Office of Energy and Planning and the Growth Management Advisory Committee described the intimate connection between New Hampshire's economy and its natural landscape:

> One root of New Hampshire's economic prosperity is the diversity of density in its towns, cities, and villages within a predominantly rural setting. This 'green infrastructure' provides and supports the quality of life in New Hampshire in many ways: air and water quality, wildlife habitat, aesthetic character and viewsheds, recreational opportunities, and economic productivity through travel and tourism, second home development, and farming and forestry.[103]

In 1999 the Resource Systems Group prepared an analysis for The Society for the Protection of New Hampshire Forests to quantify the economic impacts of open space in the state. They reached the following conclusions:[104]

- Open space is the direct underpinning of four economic sectors: agriculture, forestry, tourism and recreation, and second homes used for vacation and recreation.
- Open space-based activities contributed $8.2 billion annually to New Hampshire's economy in 1996 and 1997.
- The open space-based economy was second only to the manufacturing sector in income and employment.
- The open space-based economy contributed more than 35% to total state and local tax revenues in 1996 and 1997.

These numbers still do not reveal the full economic impact of open space. There are values associated with attributes of undeveloped land that have direct bearing on the need for and cost of additional municipal services, such as water filtration, well-head replenishment, and flood control. There are also values that are more difficult to quantify, such as those associated with ecological functioning and human health, wildlife habitat integrity, and carbon sequestering. A variety of methodologies have been developed to investigate these seemingly-intangible values.[105]

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[102] From: The Economic Impact of Open Space in New Hampshire. 1999. Resource Systems Group, Inc. Prepared for The Society for the Protection of New Hampshire Forests

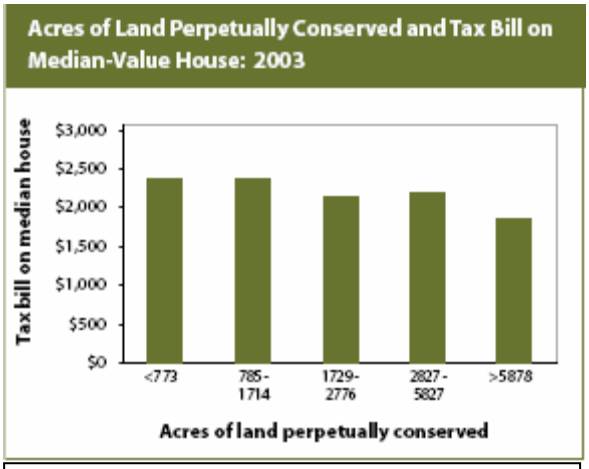
[103] From: Managing Growth in New Hampshire: Changes & Challenges. 2000. New Hampshire Office of Energy and Planning, in conjunction with The Growth Advisory Committee.

[104] From: The Economic Impact of Open Space in New Hampshire. 1999. Resource Systems Group, Inc. Prepared for The Society for the Protection of New Hampshire Forests.

[105] See www.ecosystemvaluation.org for methodologies.

A growing body of research also suggests that open space conservation is not the tax-base burden that it was once considered.

A 2005 Trust for Public Lands study, excerpted below, examined the relationship between tax bills and acres of perpetually conserved land in New Hampshire. The study found that the lowest median residential tax bills occurred in the towns with the greatest acreage in permanent conservation:



Source: Managing Growth: The Impacts of Conservation and Development on Property Taxes in New Hampshire. 2005. The Trust for Public Land.

> New Hampshire towns were ranked according to the number of acres of land that are permanently protected, and divided into five groups with 20 percent of the towns in each group. The tax bill on the median-value house was then averaged for each group. The towns that have the most permanently protected land have slightly lower tax bills, on average.
>
> It is clear that land conservation does not necessarily lead to high tax bills, as is often assumed. While the graph does not indicate that permanent land conservation lowers tax bills substantially, it does suggest an intriguing possibility. It is likely that, because conservation provides a tool for maintaining the overall rural character of a community or confining development to a more efficient municipal service area, it can help control property tax increases.[106]

Additionally, direct cost-of-services studies (which don't address indirect costs, and as such may be limited in their scope), indicate that open space lands may be a tax net-gain for towns. As mentioned in the CTAP Resource Book 1 (pages 12-13), six New Hampshire towns found that

[106] From: Brighton, D. 2005. Managing Growth: The Impacts of Conservation and Development on Property Taxes in New Hampshire. The Trust for Public Land.

open space properties cost only $0.35 to $0.95 in direct municipal services for every dollar owners of those lands pay in taxes. [107]

Some communities in New Hampshire, in light of the cultural, environmental, and potential economic benefits of conserving open space, have devoted tax money to pursuing permanent land protection in their towns. The town of Marlborough (population 2000) in their 2005 town meeting passed by a two-thirds majority an article to purchase up to $1 million in bonds to pursue conservation easements on properties that exemplify Marlborough's rural, cultural, and ecological assets.[108] The following is an excerpt from the language used in the warrant article:[109]

> Article 2: To see if the Town will vote to raise and appropriate up to the sum of One Million Dollars for the acquisition of conservation easements or open space lands by the by the Town, all for the permanent protection of appropriate undeveloped land in the Town of Marlborough, and to authorize the Board of Selectmen and Conservation Commission to act on behalf of the Town in connection with such acquisitions of conservation easements or open space lands pursuant to NHRSA 36-A and to utilize, as appropriate, the services of an independent land conservation agency and to further authorize the issuance of not more than One Million Dollars of bonds in accordance with the provisions of the Municipal Finance Act (NHRSA Chapter 33) and to authorize the Board of Selectmen to issue, negotiate, and regulate such bonds and/or notes and to determine rates of interest thereon.
>
> Said bonds/notes would be applied for on an as needed basis to acquire easements or open space of parcels as recommended by the Conservation Commission, with the approval of the Board of Selectmen. Provided further that the board of Selectmen shall not issue such bonds until such time as a hearing has been held to present to voters the particular parcel and the parcel ownership interest chosen by the Board of Selectmen for the purchase and said meeting has approved such warrant article.

[107] From Cost of Community Services Study Town of Peterborough, New Hampshire. Sponsored by the Peterborough Conservation Commission & Does Open Space Pay? Auger, Philip. University of New Hampshire Cooperative Extension. For more information on cost of community services history, methodology, and results across the country, visit http://www.farmlandinfo.org/documents/27757/FS_COCS_11-02.pdf

[108] Krinsky, Michael. Interview: 12/19/05

[109] Article 2. Marlborough Town Meeting, 2005.

V. Conclusion and Preview of Resource Book 3

Identification of where and where not to grow begins the process of proactively managing for growth, and leads to considerations of how to grow in the best areas for development. Even towns with large percentages of built environments can benefit from systematic planning for future growth and resource conservation. Communities have a host of tools available to them to proceed with the steps of identification, planning, implementation, and evaluation of results. Expertise for each step of this process is available through regional and state agencies, NGOs, and the business community.

Many of the techniques described above have local applications, but all may be greatly enhanced when analyzed at a regional or sub-regional scale. The CTAP process is designed in part to allow for community representatives to discover if, how, and where collaboration with other communities is most beneficial in planning for future growth.

Book 2 has explored the historic and current context of land use in New Hampshire, addressed some of the ideas and goals that arose from the vision map process in the CTAP Kick-off event, and began investigation into planning where communities and regions choose to grow and chose not to grow.

Book 3 will continue to explore the question of where to grow, and will expand upon CTAP vision map ideas and proactive growth management strategies for planning how to grow. We will investigate several tools that have been used to help create healthy, vibrant, walkable communities, and we will continue to explore case studies from both New Hampshire and beyond as examples of growth successes and challenges.

Appendices

Appendix A

I-93 Community Technical Assistance Program (CTAP) Kick Off Session,

December 1, 2005: Meeting Notes

The Derryfields, Manchester, New Hampshire

Attendance:

Nearly 100 people participated. Those attending included but may not have been limited to: 36 local government representatives and alternate representatives,
4 Regional Planning Commission representatives, 20 non-governmental organization leaders, 9 federal and state agency representatives, 10 Department of Transportation staff, guests, and collaborators, 3 Clough Harbour and Associates staff, 7 Antioch New England Institute staff and Antioch New England graduate students, a handful of interested community members, and several broadcast and newspaper journalists. Goffstown, Dunbarton, and Chester were not represented. Of the 14 Non-governmental organizations on the Strategic Planning Group, all but Plan NH and Concord 20/20 joined this meeting.

Agenda:

Welcome and Introductions were made by:

Ansel Sanborn, NH DOT Administrator for the Bureau Transportation
Bill Cass, NH DOT Assistant Director of Project Development
Jim Gruber, Director, Antioch New England Institute

Speakers:

Carol Murray, Commissioner of the NH Department of Transportation

Commissioner Murray recalled the small town feel of the community where she grew up. She posed the question, "First what do we want [our communities] to look like, and the corollary what do we not want [our communities] to look like in 20 years?"

Cliff Sinnott, Executive Director, Rockingham Regional Planning Commission.

Cliff Sinnott talked about "I-93 CTAP, Purpose, Premise, Promise." His presentation explored the question "How should we grow?" He presented data showing the region's growth context and development trends and consequences. The power point slides used in this presentation will be posted on the I-93 CTAP website: www.rebuildingI93.com.

Table Discussions: Participants were seated at tables of eight with a mix of local government, agency, and non-governmental organization representatives. During dinner these groups discussed three focus questions. Each table subsequently reported their results to the larger group.

Results from Table Discussions

What characteristics of your community and/or region do you value and wish to sustain into the future?

agricultural alternatives - land is too valuable to develop
Agriculture
community participation and dialogue
maintain civic dialogue/social capital
avenue-like streets
enhance urban area of towns - i.e. main street
historic districts
historic stone walls, buildings, bridges
rural character - farms, woodlands, range roads
rural character (X 4 = Pelham, Candia, Bow, Fremont)
rural value
rurality and small- town
small town environment
unique character of each village and diverse character of villages and farms
value small town New England flavor
village character - rural character
economic vitality
vital economic growth
Affordability
affordable housing and diverse housing stock
home rule
benefit of resources and services of a small town
strong town services
conservation areas - open space
keep open space in NE of Hooksett
natural resources
open space (X 2)
open space that is preserved - Bear Brook State park
open spaces and forests: productive
water resources – aquifers
water resources/natural resources
wildlife corridors (X 2)
mix of commercial and residential
keep development inside village & don't move infrastructure
controlled growth
balanced economic growth and development
maintain balance between residential, commercial, industrial
compact center – infill
concentrate development using brownfields and existing villages
healthy environment
safe, clean environment
diversity of families - age, economic class
knowing your neighbors
small town feel
sustainable tax climate
mix of commercial and industrial uses to balance tax base
easy access to highways

Park and Ride system including 2nd and 3rd tier
transit options

What changes in your community would you discourage?

loss of rural character
keep NH as NH
opposed to state mandates
state mandates
failure of schools
failure of water and sewage system – infrastructure
loss of open space (in Hooksett)
NIMBY
avoid 5 acre lots
unplanned growth
more traffic congestion
No town splitting highways

What changes in your community would you encourage?

balance environmental needs with housing, trans. Jobs
More commercial business
fully fund LCHIP - let towns land bank
retain/get back rural quality
planned economic growth
relocate MA businesses to Southern NH
high paying employment for local residents
greater housing density
more diverse housing stock
local control of housing decisions
opposed to state mandates
development density that protects natural resources
wildlife corridors
conservation easements as part of the mix
efforts to control growth
focus on redevelopment - stop sprawl
more creative planned communities
use zoning to encourage mixed & balanced growth
better regional planning cooperation
coordinate zoning between adjacent towns
coordinate regional planning and resources
regional planning that balances growth
A course called "Don't be stupid like US"
set aside park land, bike paths, open space now
better pedestrian infrastructure
connected road systems
more inner-city and intra-city transit options
more pedestrian and bike friendly communities – walkable
multi-modal transportation solutions

Park and Ride system including 2nd and 3rd tier
pedestrian access to services - walkable community

Vision Map Exercise:

Twenty years from now … if there is sustained growth … How do you want this region and your community to look, to feel, to have as a home?

On a large sheet of paper, ANEI mapped features that the representatives desired for the future of their communities and region. After all their ideas had been added to this map, the representatives placed dots next to the features that they felt were most important. The results of this activity are summarized as follows:

Theme	Feature	Votes/Dots
Business	living wage jobs	8
Business	more businesses in communities	7
Business	communities with diversity of income levels	2
Cleaning Envt'l Problems	Brownfield revitalized	2
Cleaning Envt'l Problems	better prioritization of funding for environmental mitigation	1
Environmental Protection	Inter-connected green infrastructure	30
Environmental Protection	open space: preserve open space through conservation easements	26
Environmental Protection	land-use regulations using incentives, mixed use, variable density	25
Environmental Protection	farms: preserve farmland	10
Environmental Protection	natural resources: protect wildlife and other natural resources	8
Environmental Protection	avoid developing shore lands	7
Environmental Protection	readily available alternative energy sources	6
Environmental Protection	farms: farmers make a real living (Business?)	5
Environmental Protection	open space: preserve open space through transferring development rights	4
Environmental Protection	planning with natural resources in mind, not just opportunities	4
Environmental Protection	farms: region is self-sustaining for food/fiber	3
Environmental Protection	advanced recycling technologies	2
Environmental Protection	improve air quality with focus on public health standards	2
Environmental Protection	natural resources: provide special protection for groundwater	2
Environmental Protection	natural resources: still see wildlife	2
Environmental Protection	open space: preserve open space through public-private partnerships	0
Finance	better structure for allocating financial resources on regional basis	18
Finance	stable/consistent funding system for local government	16
Housing	affordable housing	16
Housing	housing for everyone	7
Housing	extended families live close to one another	4
Municipal Services	world class public schools	11
Municipal Services	coordinated municipal solid waste services	5
Municipal Services	sustainable growth for water, fire, etc	4
Recreation	10 minutes to 10 acres	17
Recreation	opportunities for recreation	4
Regional Cooperation	impacts don't end at town boundaries	13
Regional Cooperation	regional fire and police	4
Transportation	bicycle to work, grocery store and café	7
Transportation	safe flow of transportation	5
Transportation	access to Boston without driving – train	3

Transportation	eliminate single occupancy vehicles	1
Transportation	no more widening of highways	1
Transportation	not getting hit by a car on segway	0
Vibrant Community	mixing housing and business into new centers of community	22
Vibrant Community	vibrant main streets	21
Vibrant Community	walkable neighborhoods	21
Vibrant Community	rural character: rural character preserved*	14
Vibrant Community	energy efficient	7
Vibrant Community	smart growth as the rule not the exception	7
Vibrant Community	revitalize town meeting	6
Vibrant Community	cultural resources: encourage cultural resources	5
Vibrant Community	denser downtown with multiple uses	5
Vibrant Community	distinct and varied communities	5
Vibrant Community	rural character: shared commitment to stewardship*	4
Vibrant Community	strong public safety "Kids are not worried about crime"	4
Vibrant Community	parks and recreation	3
Vibrant Community	preserve historic structures and renovate existing structures	3
Vibrant Community	Volunteers	0

Appendix B

New Hampshire Statute, Title LXIV, Planning and Zoning, Local Land Use Planning and Regulatory Powers, Master Plan, Section 674:2

674:2 Master Plan; Purpose and Description.

I. The purpose of the master plan is to set down as clearly and practically as possible the best and most appropriate future development of the area under the jurisdiction of the planning board, to aid the board in designing ordinances that result in preserving and enhancing the unique quality of life and culture of New Hampshire, and to guide the board in the performance of its other duties in a manner that achieves the principles of smart growth, sound planning, and wise resource protection.

II. The master plan shall be a set of statements and land use and development principles for the municipality with such accompanying maps, diagrams, charts and descriptions as to give legal standing to the implementation ordinances and other measures of the planning board. Each section of the master plan shall be consistent with the others in its implementation of the vision section. The master plan shall be a public record subject to the provisions of RSA 91-A. The master plan shall include, at a minimum, the following required sections:

(a) A vision section that serves to direct the other sections of the plan. This section shall contain a set of statements which articulate the desires of the citizens affected by the master plan, not only for their locality but for the region and the whole state. It shall contain a set of guiding principles and priorities to implement that vision.

(b) A land use section upon which all the following sections shall be based. This section shall translate the vision statements into physical terms. Based on a study of population, economic activity, and natural, historic, and cultural resources, it shall show existing conditions and the proposed location, extent, and intensity of future land use.

III. The master plan may also include the following sections:

(a) A transportation section which considers all pertinent modes of transportation and provides a framework for both adequate local needs and for coordination with regional and state transportation plans. Suggested items to be considered may include but are not limited to public transportation, park and ride facilities, and bicycle routes, or paths, or both.

(b) A community facilities section which identifies facilities to support the future land use pattern of subparagraph II(b), meets the projected needs of the community, and coordinates with other local governments' special districts and school districts, as well as with state and federal agencies that have multi-jurisdictional impacts.

(c) An economic development section which proposes actions to suit the community's economic goals, given its economic strengths and weaknesses in the region.

(d) A natural resources section which identifies and inventories any critical or sensitive areas or resources, not only those in the local community, but also those shared with abutting communities. This section provides a factual basis for any land development regulations that may be enacted to protect natural areas. A key component in preparing this section is to identify any conflicts between other elements of the master plan and natural resources, as well as conflicts with plans of abutting communities. The natural resources section of the master plan should include a local water resources management and protection plan as specified in RSA 4-C:22.

(e) A natural hazards section which documents the physical characteristics, severity, frequency, and extent of any potential natural hazards to the community. It should identify those elements of the built environment at risk from natural hazards as well as extent of current and future vulnerability that may result from current zoning and development policies.

(f) A recreation section which shows existing recreation areas and addresses future recreation needs.

(g) A utility and public service section analyzing the need for and showing the present and future general location of existing and anticipated public and private utilities, both local and regional, including telecommunications utilities, their supplies, and facilities for distribution and storage.

(h) A section which identifies cultural and historic resources and protects them for rehabilitation or preservation from the impact of other land use tools such as land use regulations, housing, or transportation.

(i) A regional concern section, which describes the specific areas in the municipality of significant regional interest. These areas may include resources wholly contained within the municipality or bordering, or shared, or both, with neighboring municipalities. Items to be considered may include but are not limited to public facilities, natural resources, economic and housing potential, transportation, agriculture, and open space. The intent of this section is to promote regional awareness in managing growth while fulfilling the vision statements.

(j) A neighborhood plan section which focuses on a specific geographical area of local government that includes substantial residential development. This section is a part of the local master plan and shall be consistent with it. No neighborhood plan shall be adopted until a local master plan is adopted.

(k) A community design section to identify positive physical attributes in a municipality and provide for design goals and policies for planning in specific areas to guide private and public development.

(*l*) A housing section which assesses local housing conditions and projects future housing needs of residents of all levels of income and ages in the municipality and the region as identified in the regional housing needs assessment performed by the regional planning commission pursuant to RSA 36:47, II, and which integrates the availability of human services

with other planning undertaken by the community.

(m) An implementation section, which is a long range action program of specific actions, time frames, allocation of responsibility for actions, description of land development regulations to be adopted, and procedures which the municipality may use to monitor and measure the effectiveness of each section of the plan.

Source. 1983, 447:1. 1986, 167:2. 1988, 270:1. 1989, 339:28, eff. Jan. 1, 1990; 363:15, eff. Aug. 4, 1989. 2002, 178:2, eff. July 14, 2002.

Appendix C

Optional Land Use Controls Described

The following description of optional land use controls has been adapted from the New Hampshire Office of Energy and Planning's (NHOEP's) publication *The Planning Board in New Hampshire: A Handbook for Local Officials*. Only slight changes have been made from the 2006 publication.

From the Handbook: below are brief descriptions of some of the innovative land use controls that are listed within the RSA and ideas for other land use controls that communities may consider. Presented here are only short and simple explanations of what each control constitutes. Other publications and sources should provide a more in- depth explanation of each land use control.

Timing and Phased Development
The timing or phasing of development allows communities to work with developers to ensure that growth occurs at a reasonable rate and that community services can adequately provide for the needs of new residents. Phased development must be contained within a zoning ordinance (see RSA 674:22 Growth Management; Timing of Development).

Intensity and Use Incentive
The traditional approach to regulating density is to assign a density, typically the same as the minimum lot size for a single family home, to each zoning district. Innovative approaches such as lot size averaging or density based on a scoring of the attributes of the land enable more effective implementation of a community's master plan.

Transfer of Density Rights
Transfer of density rights attempt to establish - within a municipality - a mechanism for trading the density of allowed development between zones designated for low density to areas of high density. This technique extracts a portion of a lands' value when an area is 'up zoned'. This portion of value is considered a development fee which is paid into a municipal conservation fund and can in turn be used to purchase development rights of land located in designated conservation areas. Examples of 'up zoned' areas include established mixed use village zones, new redevelopment zones, or transit oriented development zones. It is less cumbersome to administer and track transfer of density rights than conventional transfer of development rights because direct linkage of land in sending and receiving zones is not necessary.

Planned Unit Development
Planned Unit Developments (PUDs) are good options for communities to use to promote the efficient use of land and utilities by providing a pattern of development different from a "conventional' one in which there is a division of separate lots for each structure. This type of regulation can be used for residential, commercial, or industrial developments. The developments are designed so that the developer has flexibility in placing units and accessory buildings, roadways and other utilities while allowing the site to have usable open space and

preserve the important natural features. The site development is based upon a comprehensive, integrated and detailed plan rather than the specific constraints applicable to piecemeal lot-by-lot development under conventional zoning. A PUD should improve the quality of new development by encouraging aesthetically attractive features and promoting quality site and architectural design.

Open Space/Cluster/Conservation Subdivision
Open Space, Cluster and Conservation style subdivisions can be an important tool in promoting land and open space conservation while fostering more efficient use of land for development. This type of development preserves a large amount of undeveloped land in exchange for developing more intensely on a smaller area. A number of recent models have been developed over the past several years that attempt to make this form of development more attractive. In addition some communities are now mandating this form of development in areas with critical habitat or other high natural resource value.

Performance Standards
Performance standards recognize that traditional zoning and the segregation of uses does not always work, giving rise to special exceptions and rezoning. Performance standards allow land to be developed not on the basis of rigid zoning standards, but on the physical characteristics and operations of the proposed uses. Land development under performance standards is then based on certain characteristics of development evaluated against predetermined criteria and standards. Performance standards can include traffic generation, noise, lighting levels, stormwater runoff, loss of wildlife or vegetation, or even architectural style.

Environmental Characteristic Zoning
Environmental characteristics zoning allows communities to protect natural resources or features based on scientific evidence and community input. Types of resources that can be protected include aquifers, wetlands, floodplains, wildlife habitat, groundwater, and other environmental characteristics. A summary of some of these ordinances are included below.

Ridgeline/steep slope development
Preserving rural character is a top priority for most small towns in New Hampshire, and undeveloped hillsides are an essential component of a town's local identity. The steep slopes ordinance can identify regulatory and voluntary approaches that control or manage development on steep slopes. A national, regional, and local literature review should be conducted. Typical issues such as ridge-line visibility, aesthetics, and erosion and flooding that would potentially damage water quality may be explored, as well as any other related issues.

Habitat Protection
This technique ties together current 'best practice' voluntary and regulatory measures to promote land stewardship for habitat protection. The approach relies on the science-based identification of critical habitat based on wildlife and co-occurrence mapping as well as regional and local wildlife studies. Regulatory measures that focus on the landscape level as well as the site level can be included. At the site level these include recommended best practices for low-impact site design including drainage, tree protection, and protection of riparian areas. Regulatory measures at the landscape level include development density and location factors that consider migratory needs, habitat linkage coordination and cooperation with regional efforts to protect habitat.

Inclusionary Zoning/Workforce Housing
Inclusionary housing programs are a means of encouraging or requiring private developers to provide housing for moderate, low-, and very low-income households. Inclusionary housing functions by granting zoning exemptions and density bonuses to developers that permit building at a higher density if a portion of the proposed development is reserved for elderly, handicapped, or targeted lower-income households. Inclusionary housing provisions are only applicable in municipalities willing to use density bonuses as a housing development incentive for a recognized community need. Most inclusionary housing programs are voluntary. Depending on the zoning ordinance, developers interested in applying for a density bonus apply either to the local zoning board of adjustment or to the planning board.

Accessory Dwelling Unit Standards
Accessory Dwelling Units (ADUs) can address a number of housing needs within a community. ADUs are one way that a community can provide for more affordable housing or elderly housing. ADUs can provide flexibility in household arrangements to accommodate family members or nonrelated people of a permitted, owner occupied, single family dwelling, while maintaining aesthetics and residential use compatible with homes in a neighborhood.

Impact Fees
Impact Fees are regulated by RSA 674:21, V. These fees can be charged to cover the costs to capital improvements that are necessitated by new developments. Impact fees may only be charged for water treatment and distribution facilities, wastewater treatment and distribution facilities, wastewater treatment and disposal facilities, sanitary sewers, storm water drainage and flood control facilities, public road systems and rights of way, municipal office facilities, public school facilities, the municipalities' proportional share of capital facilities of a cooperative or regional school district of which the municipality is a member, public safety facilities, solid waste collection, transfer, recycling, processing and disposal facilities, public library facilities, and public recreational facilities not including public open space. All impact fees shall be assessed at the time of planning board approval of a subdivision or site plan, or when no planning board approval is required, the issuance of a building permit or other appropriate permission to proceed with development. The maximum time that an impact fee can remain unexpended is 6 years.

Village Plan Alternative Subdivision
RSA 674:21 (n), Village plan alternative subdivision, enables towns to develop this zoning and regulatory technique to encourage the preservation of open space and the efficient use of land and public and private infrastructure. There are three key features of the village plan alternative. First, the entire density permitted by existing land use regulations must be located within 20 percent or less of the entire parcel available for development. The remaining 80 percent is to be used for conservation, recreation, or agricultural uses.
Second, the village plan alternative must comply with existing subdivision regulations relating to emergency access, fire prevention, and public health and safety, however, lot size setbacks, dimensional requirements having to do with frontage and setbacks, density regulations, and lot size regulations, shall not apply. Third, an application made under the village plan alternative ordinance must be given expedited review.

OTHER INNOVATIVE LAND USE CONTROLS

Infill Development

Infill development is development that takes place within existing communities, making maximum use of the existing infrastructure instead of building on previously undeveloped land.

Agricultural incentive zoning

Preserving rural character is a top priority for most small towns in New Hampshire, and the zoning RSAs specifically state that "agricultural activities are a beneficial and worthwhile feature of the NH landscape and shall not be unreasonably limited by use of municipal planning and zoning powers…"

Minimum Impact Development (Site Scale)

Minimum Impact Development is a community planning approach that balances "Smart Growth" principles, land and resource conservation, indoor environmental quality, and energy efficiency in order to minimize pollution, promote social capital, protect open spaces, and maintain connectivity between natural resources. At the site scale, Minimum Impact Development design principles include incorporating a mix of uses, providing opportunities for mobility through and around the site, promoting social interaction through the location of social infrastructure such as benches or common dining areas, protecting existing resources such as trees or stone walls by drawing lot lines after key resources are identified, minimizing impervious surfaces, and retaining natural vegetation wherever possible and requiring non-invasive plantings where existing vegetation cannot be retained. Emphasis is placed on maximum on-site stormwater infiltration and prevention of stormwater runoff.

Energy-efficient development

Energy-efficient development incorporates site design techniques to take advantage of sun exposure, differences in microclimate and landscaping, as well as planning techniques that can be used in designing housing, deciding on density levels, integrating different land uses, and designing transportation and circulation systems. Energy-efficient planning techniques can be implemented through the use of traditional controls, such as site plan, zoning, and building codes.

Transit-oriented development

Transit-oriented development (TOD) encourages a mixture of residential, commercial, and employment opportunities within identified areas that have access to transit centers. The TOD promotes development that supports transit by ensuring access to transit and attempts to limit conflicts between vehicles and pedestrians, and transit operations. The TOD allows for more intense and efficient use of land at increased densities for the mutual reinforcement of public investments and private development. Uses are regulated for a more intense built up environment, oriented to pedestrian amenities, creating a more pleasant pedestrian environment without excluding the automobile. A TOD is usually restricted to areas within walking distance to the transit station and can be new construction or redevelopment.

Livable/Walkable Development Design

Designing communities as Livable/Walkable places means creating a balance between the economic, human, environmental, and social health of a community. Such development considers community planning and zoning practices at a human scale through the implementation of tools such as traffic calming devices, street and intersection design, bicycle

and pedestrian facility design, ADA requirements, and community beautification programs. Livable/Walkable development practices protect natural resources by reducing the use of personal automobiles, support business by enabling people to access services locally, promote social capital by encouraging casual interaction, enhance personal physical fitness through increased activity, and diminish crime and other social problems by increasing the number of people on local streets.

Access Management

Access management is the practice of coordinating the location, number, spacing and design of access points to minimize site access conflicts and maximize the traffic capacity of a roadway. Uncoordinated growth along major travel corridors can result in strip development and a proliferation of access points. In most instances, each individual development along a corridor has its own access driveway. Numerous access points along the corridor create conflicts between turning and through traffic that cause delays and accidents. Historically, transportation and access management plans concentrated primarily on the movement of vehicles. Current planning efforts focus on all modes of transportation including vehicles, public transit, bicycles and pedestrians.

Dark Skies Lighting Ordinance[110]

The purpose of a Dark Skies Lighting Ordinance is to work to lessen the impact of light pollution, to reduce the effects of unnatural lighting on the environment, and to reduce energy usage. There are a number of existing examples of these lighting ordinances throughout the country.

Growth boundaries

Urban growth boundaries mark the separation between rural and urban lands by designating growth areas for development and creating economic incentive for development to take place within designated urban service areas. They are often related to or are a precursor to other sustainable development techniques such as brownfields development, infill development and transfer of density rights.

[110] The Office of Energy Planning's (OEP) Technical Bulletin 16: Outdoor Lighting contains useful information and a model lighting ordinance for communities to use as a starting point. This bulletin is available on the OEP's website at: nh.gov/oep/resourcelibrary/TechnicalBulletins.htm or by calling their office at (603) 271-2155.

Appendix D

Miscellaneous State and Federal Controls Affecting Land Use

Site Specific Approval/Terrain Alteration
Dredge and Fill Permits
Permits to Fill and Dredge in Wetlands
Shoreline Structures
Shoreline Protection
Ground Water Discharge Permits
Individual Septic Approval
Subdivision Approval
Condominium Conversion
Sewer Discharge Permit
Water Supply Extension Permit
Small Public Water Systems
New Hampshire Safe Drinking Water Act
Dam Permits
Driveway Permits
Trench Permit
Underground Storage Facilities
Condominium Registration
State Sign Regulation
Land Sales Full Disclosure Act
Air Quality Permit
Restrictions on Removal of Vegetation
Construction Near Grave Sites
Recreational Campgrounds and Camping Parks
Clean Air Act
National Environmental Policy Act
Rivers and Harbors Act of 1899
Federal Water Pollution Control Act
Federal Coastal Zone Management Act of 1972
Wild and Scenic Rivers Act
New Hampshire Rivers Management and Protection Act
Flood Disaster Protection Act of 1973
Resource Conservation and Recovery Act of 1976
National Pollutant Discharge Elimination System
Asbestos Management
Water Use Registration and Water use Reporting Requirements
Ground Water Protection Act

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