



## Chapter 9: Ecological Implications for Local Decision-Making

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*The Natural Resource Inventory of Dutchess County, NY* presents a comprehensive evaluation of all the major natural elements of the county's ecosystems, documenting many facts and details, but the true beauty is in the big picture. Perhaps it may be more accurate to refer to the NRI as "*The Ecology of Dutchess County.*" Ecology is the study of the interactions among organisms and their environment (Forman, 1995: 19). It stresses systems or network thinking, reciprocal relationships, and a combined understanding of seemingly separate activities within the context of a larger whole. This concluding chapter concentrates on how to make successful decisions and designs for the future within the

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concept of a broader natural network, looking at nature and human activities as interconnected ecosystems, not competing camps.

Every natural species is distinctive and valuable in its own way, but humans have evolved with several key distinguishing characteristics. We routinely override our basic instincts with independent decision-making, are adaptable to almost every environment on Earth, and are capable of sophisticated language, abstract reasoning, and technological achievements. We can even consciously and creatively accelerate the multi-generational process of natural evolution with dramatic cultural and physical changes. Most importantly in this context, humans can envision an ideal and then produce imaginative plans and the means to make it happen. To a large degree, we are distinctive through our designs, especially in the redesigning of our own human habitats.



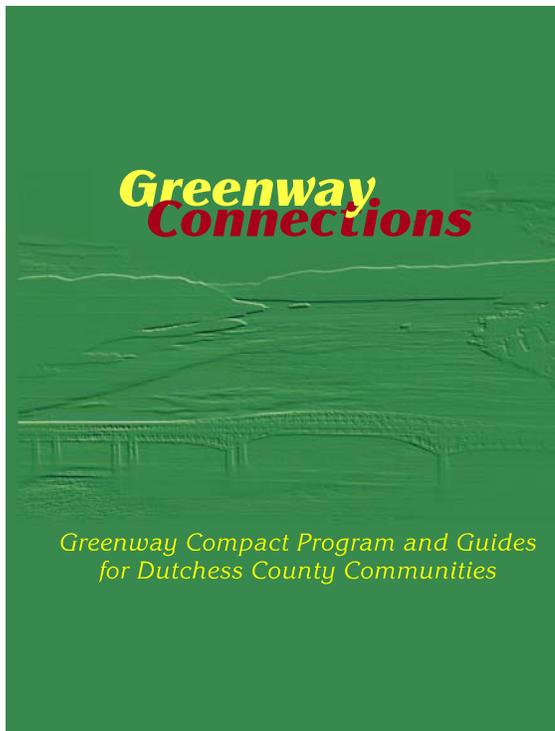
**Figure 9.1. Two contrasting development models: single-use, auto-dependent commercial strip displaces nature along Route 9, or a mixed-use, walkable center embedded in nature, like the City of Beacon.**

However, many of our past development practices have attempted to dominate and displace the natural world, and we have degraded much of it in the process. Pollution, invasive species, and landscape fragmentation caused by sprawling development patterns destroy sensitive species and threaten wider natural systems throughout the region. In some ways sprawl acts like an invasive species. Given the unsustainable level of land consumption over the last 60 years and the broader urgency imposed by global energy and climate concerns, it seems time now to acknowledge our deep interdependence with nature, find a green way to live with the land, and repair our common home.

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect... That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics.  
- Aldo Leopold, *A Sand County Almanac*, 1949: xviii

## THE GREENWAY COMPACT

The Hudson Valley Greenway Act of 1991 created a process for voluntary regional cooperation among 324 communities within 13 counties that border the Hudson River. Dutchess County developed the first Greenway Compact plan in 2000, designed to be a model for Greenway planning throughout the region. *Greenway Connections: Greenway Compact Program and Guides for Dutchess County Communities* has been adopted by 29 out of 30 municipalities and by Dutchess County as a voluntary set of regional planning principles, practical guidelines, and incentives to promote intermunicipal cooperation. It has translated into numerous intermunicipal partnerships and projects and served as a guide for the coordination of state, county, and local government priorities.



### The Greenway Compact:

- is entirely voluntary;
- respects home rule; and
- relies on incentives and guidelines, not any state or county requirements.

Figure 9.2

*Greenway Connections* guidebook

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A basic Greenway premise is that environmental enhancement improves economic development opportunities. Major regional income generators, including tourism, agriculture, main street and waterfront revitalization, and urban and industrial redevelopment projects, benefit from improved environmental surroundings. A higher quality of life is also a proven way to attract investment and creative talent. *Greenway Connections* provides both smart growth and natural protection principles and a wide range of illustrated Greenway Guides, from saving farmland and connected habitats to priority growth areas and commercial strip redevelopment, all in an easy-to-use format for local officials.

This primary Greenway goal to merge economic and environmental priorities builds on the following conceptual framework for our relationship with nature (*Greenway Connections*, 2000: 14):

### **Nature is too-often categorized:**

- as somehow outside, even the opposite of the human community and the places we live and work;
- as separated resources (e.g. wetlands, floodplains, steep slopes, prime aquifers), and;
- as focused on natural constraints, negative impacts, and protective regulations.

### **As a beginning Greenway step, municipalities are asked to appreciate nature as:**

- an essential part of our everyday environment in both cities and the countryside;
- integrated systems that flow through landscapes like river valleys or mountain ranges, creating continuous wildlife corridors and potential trail connections; and
- positive features and surrounding greenbelts that enhance and shape the places we build.

Greenway principles first recognize that human communities are not separate from nature as automatic alien elements. We are instead immersed in natural relationships, from the atmosphere we breathe and the daily weather patterns to local food sources and the substantial benefits of surrounding natural features, such as cleaner air and water sources, moderated temperatures, reduced flood potential, recreational uses, and all the other ecological cycles and services. Designers that combine creativity with a conservation ethic have begun to construct buildings and imagine cities and villages that emulate the deep structure of nature, so “[b]uildings, systems, neighborhoods and even whole cities can be entwined with surrounding ecosystems in ways that are mutually enriching”

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(McDonough and Braungart, 2002: 87; see also Alexander, 2003: 3). Greenways are defined as paths (in the broadest sense of the term) where the natural and the human landscapes coincide. Physically, they link large continuous greenspaces, countryside trails, and parkways with, boulevards, sidewalk systems, tree-lined main streets, and central parks.

A second key point is that fragmented landscapes are a direct result of fragmented thinking. As examples, “[l]and is partitioned into zoning districts that strictly separate housing from stores and job sites, the environment is segmented into various natural constraints (wetlands, floodplains, steep slopes) with different rules and regulating agencies, while layers of government create additional fragmented jurisdictions” (Greenway Connections, 2000: 21). Thinking in a green way, by comparison, expands the perspective to mixed-use neighborhoods, connected landscape patterns, and regional cooperation, rather than focusing on piecemeal or parcel-by-parcel analyses.

Each pattern can exist in the world, only to the extent that it is supported by other patterns...when you build a thing you cannot merely build that thing in isolation, but must also repair the world around it, and within it, so that the larger world at that one place becomes more coherent, and more whole; and the thing which you make takes its place in the web of nature, as you make it.

- Christopher Alexander, *A Pattern Language*, 1977: xiii.

Finally, advocates for development, agriculture, or the environment far too often get locked in reactive land use battles where confrontational tactics and half-measure compromises usually leave everyone dissatisfied. Arguments are framed in defensive terms; the wonders of nature are classified as natural constraints, while development is primarily judged by a compilation of negative impacts. If, however, potential developers follow the Greenway Guides up front and place new development in priority locations identified in local plans, projects can be welcomed as positive contributions to the community. Since so much of recent suburban development remains spread across the landscape in inefficient patterns for transportation, infrastructure connections, and ongoing local maintenance costs, it is not enough to merely focus on preventing future sprawl. Public support for well-designed

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regenerative development in smart growth locations is needed to reverse the trends, restore existing centers, help heal the rural countryside, and reestablish healthy natural biodiversity (Johnson and Klemens, 2005: 355). Smart growth plans, supplemented by the best practices illustrated in the Greenway Guides, offer opportunities to give growth back its good name.

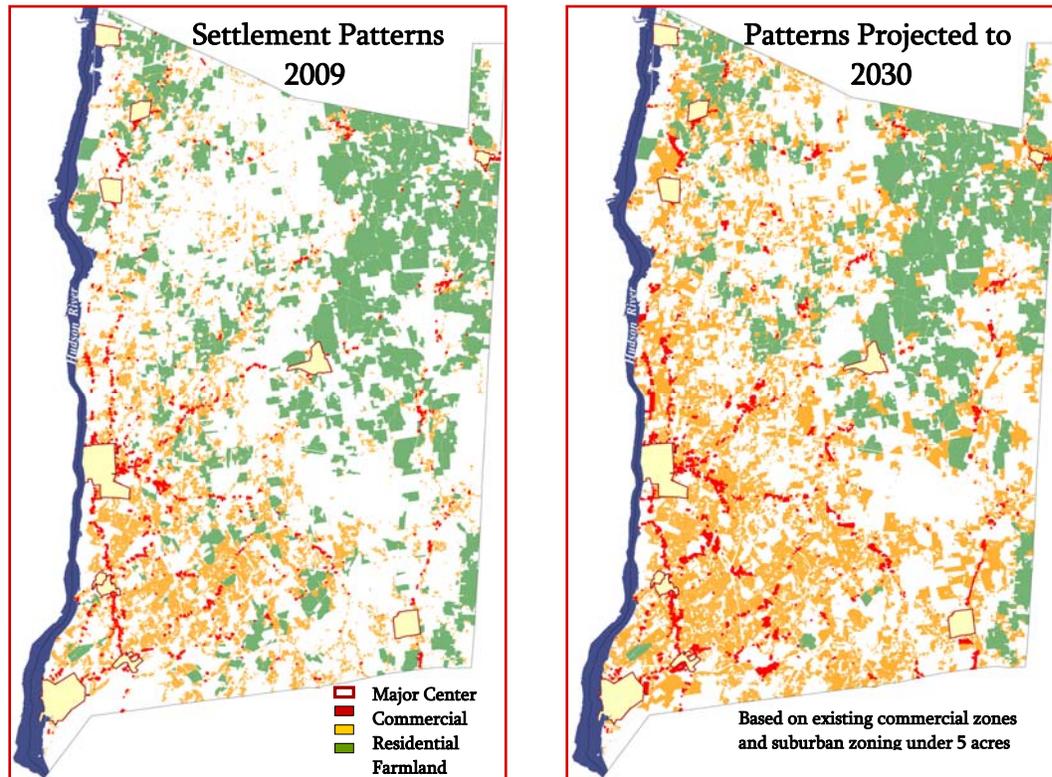


Figure 9.3. Spreading strip-and-sprawl patterns of the Hudson Valley Greenway

## CENTERS AND GREENSPACES

A proposed new Centers and Greenspaces guide for Dutchess County provides a way for local communities to define smart growth and counter the current commercial strip and scattered residential sprawl patterns that are fragmenting both communities and nature (Dutchess County Planning Federation, January/February 2010). This new approach integrates traditional land use, transportation, and ecological planning precedents to re-center most new development into walkable, mixed-use forms, protect our natural and agricultural heritage, end wasteful land, energy, and pollution practices, and provide a wider range of transportation choices. The Centers and Greenspaces regional

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pattern guide will also be linked to an interactive website, featuring the most up-to-date digital mapping layers and our best local planning examples where centers have been designed to save greenspaces.

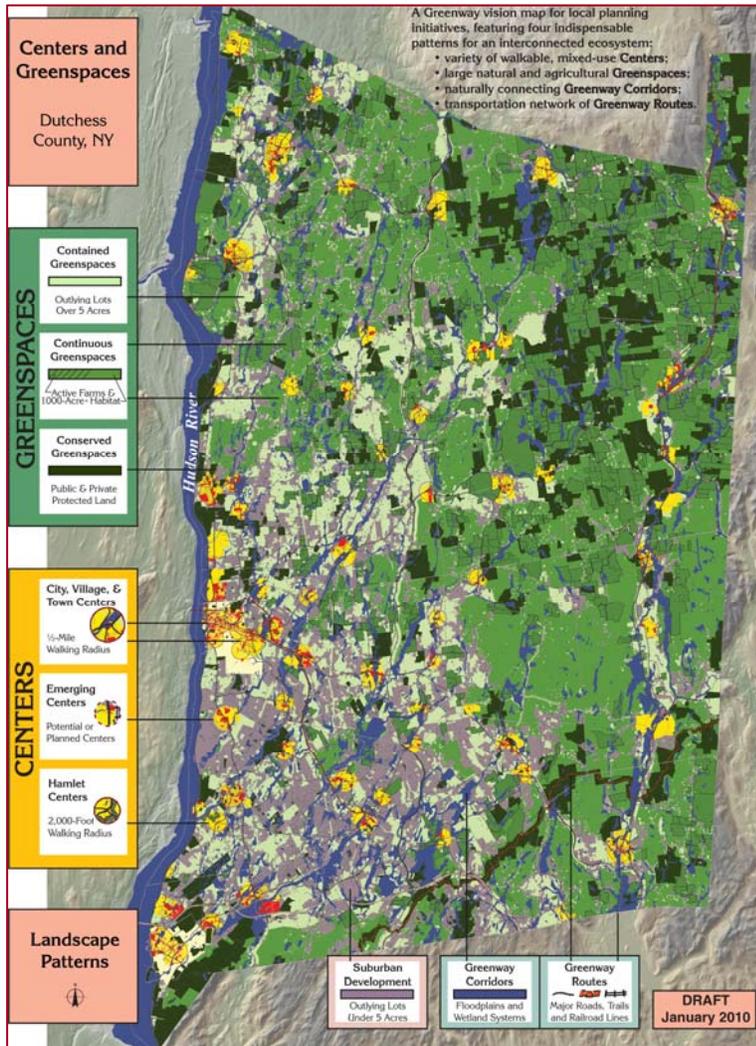
	
<p><b>Build close-knit, connected centers...</b></p> <ul style="list-style-type: none"><li>• Reinforce existing centers and main streets;</li><li>• Mix uses to promote walking;</li><li>• Integrate major centers with transit services;</li><li>• Locally identify <u>priority growth areas</u> for close-in expansion and conversion of strip districts or subdivisions into new centers.</li></ul>	<p><b>To protect our landscape legacy.</b></p> <ul style="list-style-type: none"><li>• Employ a range of protection measures for farmland and natural wildlife areas;</li><li>• Adopt rural and agricultural zoning;</li><li>• Plan for continuous greenspace systems;</li><li>• Locally identify <u>priority greenspaces</u> for future public or private conservation.</li></ul>

**Figure 9.4. Centers and Greenspaces comprehensive planning.**

The goal is to encourage municipalities to create plans that identify natural and agricultural greenspaces for possible protection measures and priority growth centers with positive development potential. Using a build-from-the-bottom-up Greenway approach, the guide and maps are based on initial Centers and Greenspaces plans for seven Dutchess County communities, including two villages and two rural towns, two more suburban communities, and a central city. The featured case study is the Red Hook Centers and Greenspaces Plan, produced by an Intermunicipal Task Force from the town and two villages working together to protect their rural character and save farms through a new Agricultural Business District, while reinforcing the traditional village centers and promoting economic development. The plan and proposed zoning not only locally designate greenspaces and growth centers, they also illustrate what new close-in development might look like to ensure compatibility with existing neighborhoods and to provide design guidance for future proposals.

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Instead of negative reactions to random development locations, the plan offers a positive community statement for where growth can be beneficial, acting as an advertisement for new economic investment and streamlining the review process for projects consistent with community plans.



**Centers and Greenspaces Guide** linked to County website, featuring:

- full range of digital map layers;
- county, town, and center levels; and
- exemplary local plans and projects.

Figure 9.5. Dutchess County Centers and Greenspaces map

The draft Centers and Greenspaces map is based on underlying conditions in Dutchess County, but acts as a Greenway vision map for future local planning initiatives, featuring four indispensable patterns for interconnected natural and human ecosystems:

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- **Centers:** priority locations for mixed-use growth, including cities, villages, hamlets, and emerging centers, organized within a ¼- to ½-mile convenient walking radius;
- **Greenspaces:** priority areas for conservation, combining active farmland and continuous natural areas into large “biodiversity blocks” over 1,000 acres for area-sensitive species;
- **Greenway Corridors:** waterway systems, connecting natural patches, and other critical linkages between greenspaces for water quality protection and wildlife movement; and
- **Greenway Routes:** transportation linkages between centers, connecting trails to sidewalk systems and regional rail lines and parkways to central tree-lined main streets.

Both centered and connected, these essential landscape patterns demonstrate how the traditional, time-tested ways of constructing compact communities are complemented by the most productive large block forms for surrounding plant and wildlife communities. And just as large continuous greenspaces of woods, wetlands, and mixed agricultural areas generate the greatest diversity of natural species, mixed-use centers create the highest levels of diversity in population characteristics, commerce, and culture. Broader ranges of biodiversity are a sign of healthy and more resilient living systems at all levels and locations.

What is remarkable about the Centers and Greenspaces mapping is that, despite decades of primarily auto-dependent strip-and-sprawl development, the framework for a smart growth future that preserves our county’s natural and rural heritage is still visible. There is available space for new infill development, close-in extensions around our historic centers, and for retrofitting existing commercial strips and subdivisions into mixed-use emerging centers, without spreading out into the remaining countryside. Connected greenspaces, initially defined by habitat studies as over 1,000 acres and undivided by roads over 25 vehicles per hour, still prevail in large sections of the county. Communities can use these general mapping thresholds as starting points for more detailed greenspaces protection plans that include a variety of locally identified factors, such as agricultural soils, important habitats or natural features, open views, gateway locations, settings for historic structures, or potential for public access. The NRI, supplemented by town-wide biodiversity mapping or other place-specific studies, should be part of the process for designating significant local and intermunicipal greenspaces.

## LAND CONSERVATION AND DEVELOPMENT TOOLS

The following sections introduce a few of the land conservation measures and incentives for compact development that can be used to support Greenway and smart growth principles. This is not intended as a catalog of complete information on land use laws, but as a discussion of implications for planning and recent trends. For more information and for specific legal issues, questions should be directed to the [New York State Department of State](#).

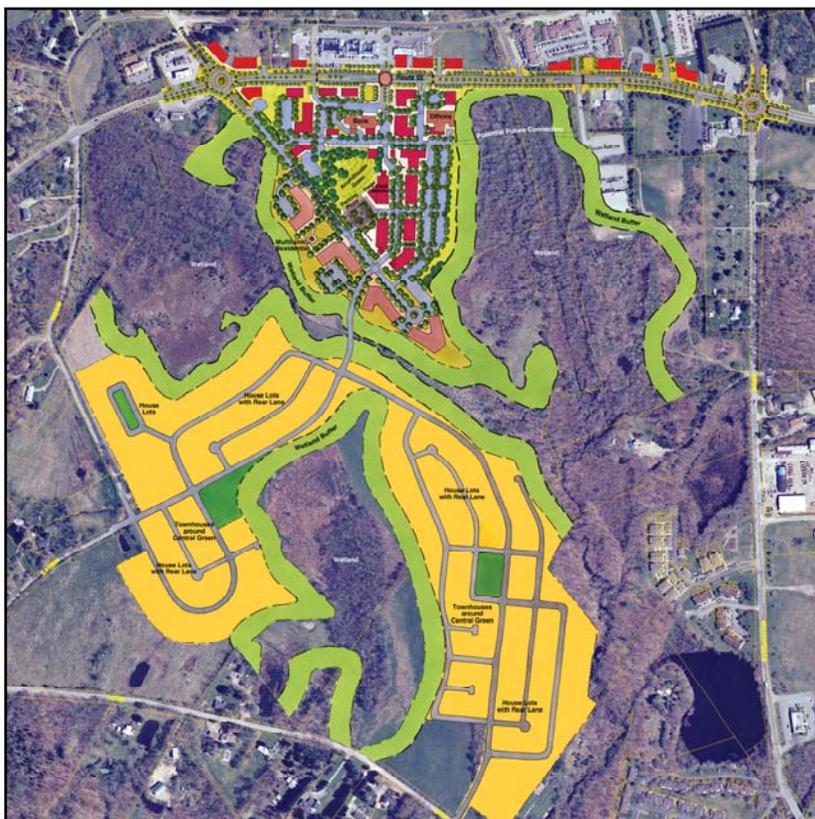
### Local Plans and Zoning

As a home rule state, New York provides very broad authority to its municipalities to address local land use and environmental issues at the local level (Nolon, 2003). Under the New York State [Municipal Home Rule Law](#), localities are given the authority to adopt laws relating to their property, affairs, or government, to the protection and enhancement of the physical and visual environment and to matters delegated to them under the statute of local governments (Article 2, Section 10). The New York State [Statute on Local Governments](#) (Article 10, Sections 6 and 7) also delegates the power to adopt, amend, and repeal zoning regulations, and perform comprehensive or other planning work to local governments. Thus, although subject to specific state health, transportation, and environmental permits and regulations, development in New York is primarily controlled at the municipal level through zoning, subdivision, and other local laws.

Zoning is intended to protect the health, safety, morals, and general welfare of a community and, according to state statute, should be based on a well-considered or comprehensive plan. Plans need to incorporate a broad public participation process and most end up containing lists of commendable goals and long-term recommendations. However, to be effective, comprehensive plans should move beyond vague goals to include designated priority greenspaces and growth centers, as well as illustrative plans for specific project areas. Overly general long-term plans generate little lasting inspiration and too soon become out of date, while specific, shorter-term plans with committed visions tend to maintain public momentum. The Town of LaGrange, for example, supplemented its plan with an illustrative sketch for a new Town Center, complete with proposed improvements for Route 55, a village green, commercial main street, and mix of housing types that

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attracted immediate developer interest. The Town of Red Hook followed the adoption of its Open Space Plan with a successful public bonding referendum to fund a purchase of development rights program for important farmlands.



**Figure 9.6. LaGrange Town Center Illustrative Plan was adopted into the Comprehensive Plan in 2003 as a model for subsequent rezoning and private development proposals.**

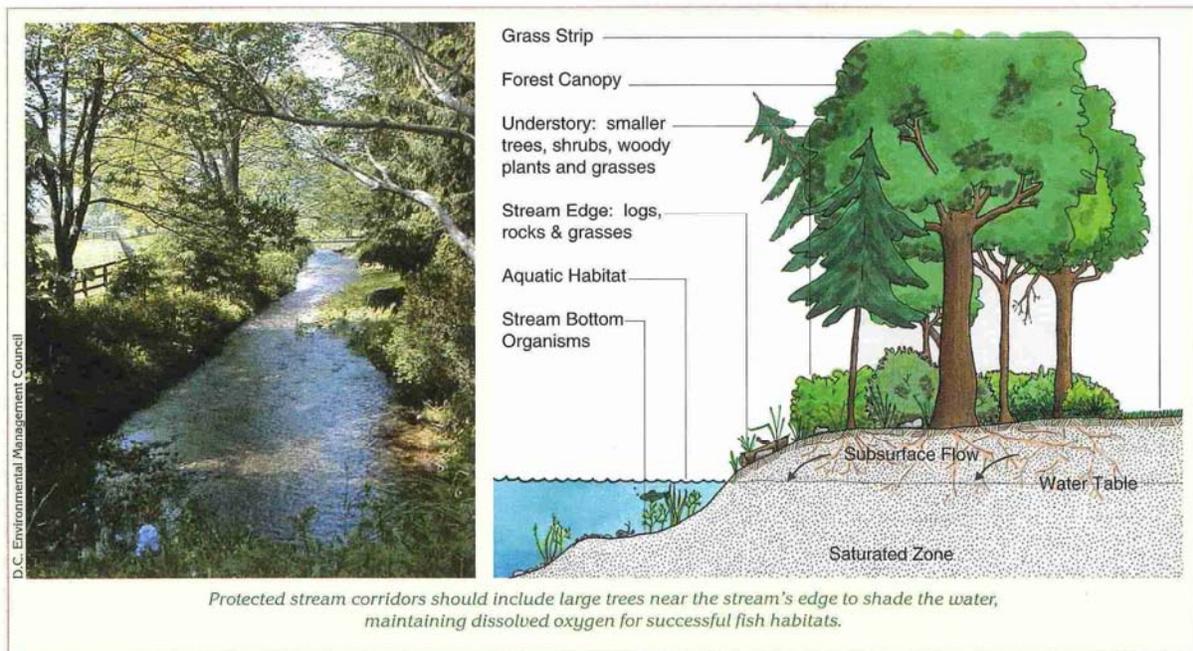
Too often well-intentioned comprehensive plans flounder or are soon forgotten once the subsequent zoning code is adopted. This is an indication that the plan did not have enough creative substance or detail to be self-sustaining. Zoning laws provide purpose statements, procedures, specific standards, and regulatory districts, but are not intended to offer an overall vision or inspire ongoing public action. Codes mostly contain lists of what uses can and cannot happen in certain districts, not descriptions or illustrations of what the community would like to see. To address this problem and to bridge the gap between plans and zoning, some municipalities are adopting form-

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based zoning codes that incorporate illustrations and emphasize positive design guidance, rather than primarily restrictions.

Modern zoning techniques have also been justifiably criticized for stressing the segregation of uses into widely separated residential, retail, office, and industrial districts, larger-than-necessary housing lots, and high minimum parking standards. The resulting spread-out development patterns require automobile trips for every major movement and allow excessive paving to dominate most site plans. Recent trends in local land regulations are moving away from the separated, single-use districts and from suburban-scale residential zoning that carves up former fields and forests into small repetitive pieces. Too many strip commercial zones still remain, but many communities are encouraging more flexible development options with mixed-use hamlet districts and multi-family housing encouraged around and above central business buildings. Site plan priorities can shift toward pedestrians, biking, and transit-oriented development to balance automobile access. Minimum parking mandates can be turned into maximum parking standards with lower space requirements and strong landscaping provisions to convert sterile lots into shaded parking groves.

Consistent with the information in the Natural Resource Inventory, local governments can also add supplemental sections to protect important natural features, such as prime agricultural soils, steep slopes, ridgelines, local wetlands and watercourses, aquifers, and even local climate change provisions. Model zoning and subdivision regulations and GIS mapping are available for a variety of issues and areas. Rather than zoning as if sprawling residential development was inevitable in outlying areas, rural and agricultural zoning districts should be established with lot sizes and other standards to discourage scattered subdivisions. Suburban zoning is generally considered to be in the 1/2-acre to five-acre lot range, too large to be cost efficient for transportation connections and central utilities, while too small to allow farming or maintain the previous rural character. Larger acreage zoning combined with conservation development requirements creates a more effective strategy for rural land protection. The Greenway Guides also offer practical solutions for fitting development into the rural landscape, preventing strip residential subdivisions, and creating farm conservation plans.



**Figure 9.7. From the Greenway Guide on Stream Corridor Protection.**

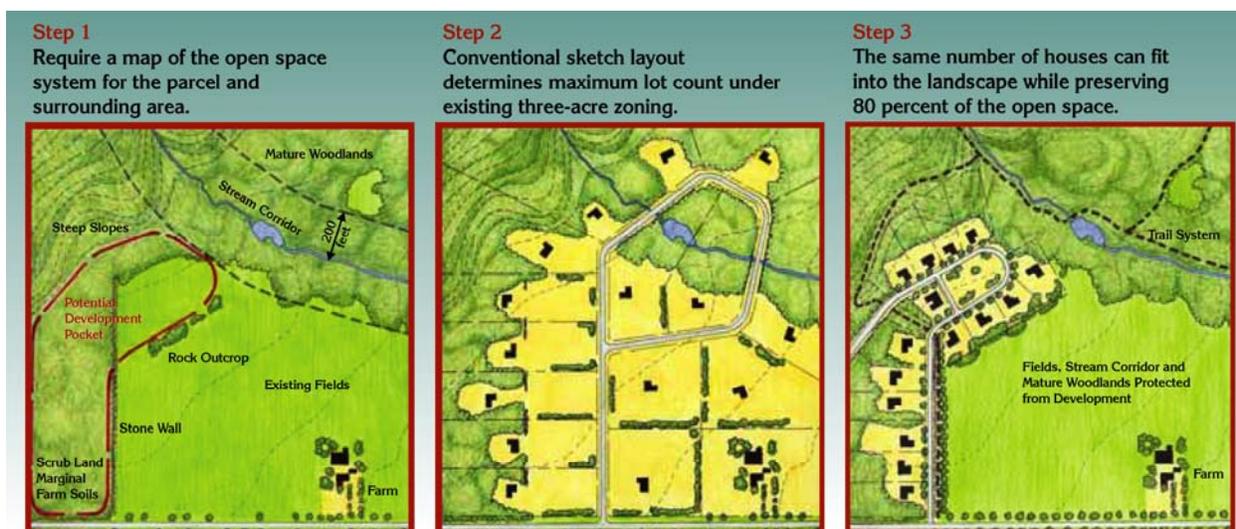
### Conservation Development

Conservation subdivisions allow development in rural locations, but save substantial percentages of natural areas or farmland by clustering development on smaller lots than the designated minimum lot sizes. Each site has unique circumstances, but conservation design can be described in three simple steps. First, map all the area's significant natural and cultural features, especially natural systems that continue on surrounding properties, as well as potential development pockets that fit well within that natural framework and also might create linkages to adjacent development sites or possible street networks. Second, determine the maximum lot count by sketching a standard subdivision that complies with all zoning and health regulations. Under this conventional layout the important features of the site would likely be fragmented into various back yards. Finally, arrange the same number of allowable lots in the best development pocket for conserving the maximum amount of sensitive land and making external connections.

Ideal designs permanently preserve well over half the land in a conservation easement, while reducing the developer's costs for roads and other utilities and providing new residents with direct

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access to open land and excellent countryside views. Larger minimum lot sizes facilitate the conservation design process and create better opportunities for substantial greenspace protection. For example, it is almost impossible to reduce development pockets in one-acre residential districts without access to central utilities because of separation distances for wells and septic systems. In five-acre or larger districts, however, clustering down to smaller legal lots can result in 80 percent protected landscapes.



**Figure 9.8. Model conservation subdivision process for fitting into the rural landscape.**

However, conservation subdivisions are not necessarily the best way to preserve rural character. They still lead to pockets of scattered development that are entirely dependent on long automobile trips, can induce residential conflicts with adjacent farming activities, and partially fragment large natural biodiversity blocks. Boards overseeing conservation design should, as much as possible, gather lots and buildings together in compact groupings, close to existing adjacent development or road connections, rather than allowing strung-out cul-de-sacs through the buildable portions of the property to fragment natural landscapes. Some subdividers try to take advantage of the process to squeeze in more lots, while only protecting land that is already unbuildable because of floodplains, designated wetlands, or slopes over 20 percent. To avoid this, communities have begun deducting truly unbuildable land before establishing the base unit count. Other conservation techniques may provide more comprehensive protection.

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### Conservation Easements

A Conservation Easement is a tool for conserving private land. It is a legal agreement between a landowner and a land trust or government entity that permanently limits uses of the land in order to protect its conservation values. It allows landowners to continue to own and use their land; the property remains on the tax rolls and can be sold or passed on to heirs. Conservation easements do not generally require public access to privately owned, protected parcels. Establishing a conservation easement is initiated by a landowner and is not a governmental taking.

When owners sell or donate a conservation easement to a land trust, they give up some of the rights associated with the land. For example, a landowner might give up the right to build additional structures, while retaining the right to grow crops. Future owners also will be bound by the easement's terms. A conservation easement should be administered by either the municipality or a qualified local land trust to ensure its permanent status and to oversee any necessary maintenance. The land trust is responsible for making sure the easement's terms are followed. This is managed through "stewardship" by the land trust (Land Trust Alliance, 2010). Homeowners associations representing multiple private owners are not always reliable partners for maintaining the easement property, paying any necessary taxes, or avoiding encroachments.

A municipality may use conservation easements to secure areas of critical importance to its residents. In an Open Space Plan, a community, after identifying areas of natural or cultural value, can rely on a number of strategies including easements to protect significant areas. Although the cost of outright purchase of all sensitive land is usually far too expensive for a community to undertake, an easement between a landowner and land trust might be suggested at a fraction of the cost. Areas where this is especially effective may be near other areas of land already preserved by a community.

### Purchase or Transfer of Development Rights

Perhaps the most straightforward way to permanently preserve land is to simply buy it. Purchase of development rights (PDR) is even better than that because it only buys the rights to further develop, so the property can maintain its original use and stay on the tax rolls. PDR costs less than outright purchase, but it is still very expensive unless the area is zoned for very limited development.

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Beekman, LaGrange, and Red Hook have funded local PDR programs and Dutchess County has committed approximately \$6 million through the *Partnership for Manageable Growth and Open Space and Farmland Protection Matching Grant Program*, contributing to the protection of almost 2,500 acres as of 2010. But to buy all the development rights in a prime agricultural valley or thousands of continuous acres of forest reserves is a difficult proposition. Thus, PDR is usually used when the most important individual parcels become available, resulting in a patchwork approach to land conservation.



**Figure 9.9. Properties funded by the Dutchess County PDR program include the 228-acre Steiner Farm in Red Hook and the 58-acre Stone Church natural and historic site in Dover.**

A less costly but more complicated way to preserve land is to use transfer of development rights (TDR). Municipalities setting up TDR programs designate sending districts that they want to protect and receiving districts where development is promoted. Property owners are encouraged to transfer allowable housing units from sending to receiving areas. Conservation easements are then placed on the sending parcels. In active markets this can be sometimes be negotiated between private property owners and substantial land can be preserved without any public expenditures. In areas with softer market demand governments may need to intervene, either by helping to negotiate the transfer or by setting up TDR banks to purchase and resell development rights. TDR often requires considerable administrative effort to promote the program, match buyers and sellers, and

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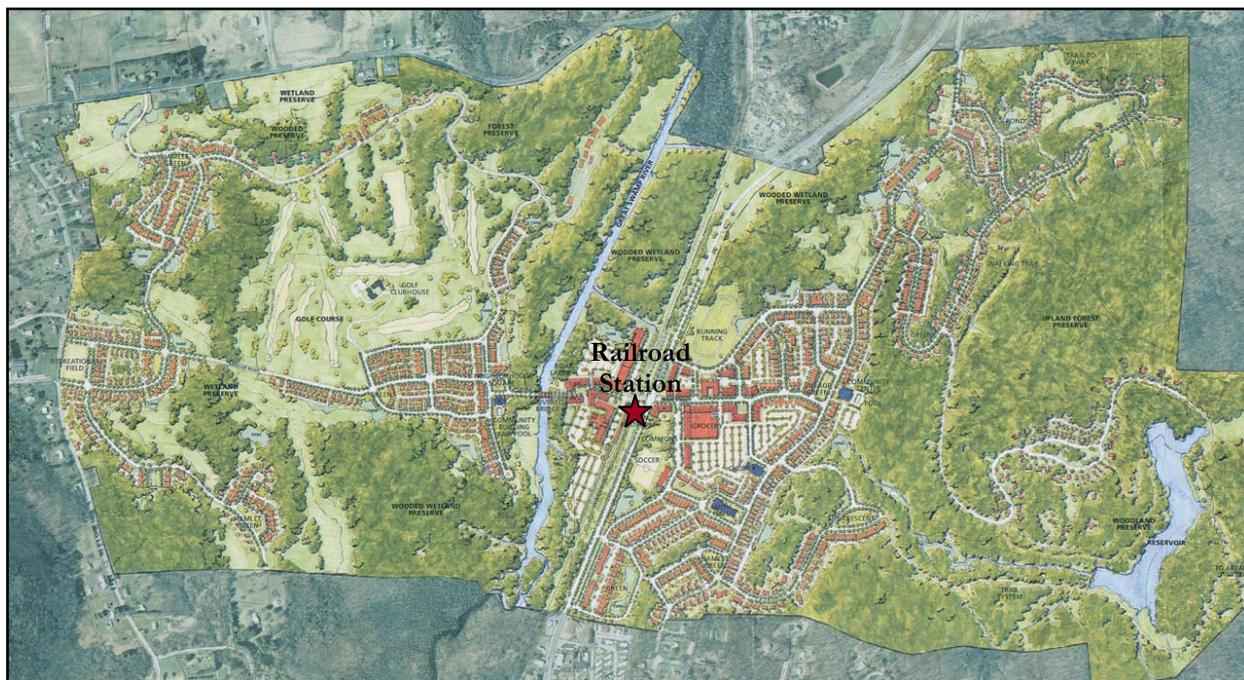
accurately assess the changing values of development rights. The Town of Amenia recently adopted a one-page TDR zoning provision, so simple TDR rules are possible, but successful programs usually involve substantial staff time.

### State Environmental Quality Review Act

New York State adopted the [State Environmental Quality Review Act \(SEQR\)](#) in 1978 as a process to evaluate the potential environmental, social, and economic effects of private and government actions. Reviewing bodies are required to take a hard look at activities that meet certain thresholds as prescribed in the law, coordinate with other involved and interested agencies, and invite public comments. Environmental assessment forms provide lead agencies with the basic information to determine whether the impacts on a variety of environmental factors are significant enough to warrant closer review. Major projects with significant impacts require a complete environmental impact statement (EIS), which can involve thousands of pages in multiple volumes. SEQR is an invaluable tool to provide all the necessary facts to make informed decisions, but it has also been mis-used to simply stall or stop controversial proposals.

The SEQR process, as generally practiced, can generate legitimate complaints, not only for the sometimes slow time frames, but also because of its limited track record in creating much better projects. Projects are routinely judged in terms of minimizing negative impacts, in other words making them less bad, instead of insisting on positive solutions that contribute to the places they change. Required project alternatives in environmental impact statements are also not often treated seriously. The applicants do not want to change their preferred proposal and the reviewing agencies are timid in challenging them to provide legitimate alternatives that might mean re-engineering the project. As an example of what is possible under SEQR, the Town of Dover required an applicant to not only provide credible alternatives to an unacceptable EIS proposal, but also hire a different design consultant with experience in the desired type of mixed-use, transit-oriented development. One of the resulting alternatives pleased both the Town and the applicant, who adopted it as the new preferred option. A primary objective of the SEQR process should be producing positive alternatives, not filling out checklists or creating pounds of paperwork.

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**Figure 9.10.** The Knolls of Dover is a transit-oriented development project on a former state institution site, proposing 1,376 housing units, most within walking distance of the rail station, and a new main street center with a supermarket anchor.

### Strategies for successful SEQRA reviews on significant projects include:

- Meet with the applicants very early in the process to evaluate the site and discuss development options before they get locked into a proposal and spend too much money on consultants;
- As lead agency, take charge of the process by making sure that the documents are accurate and edited for clarity and completeness, rather than just accepting drafts from the applicants;
- Set a schedule for the various steps, avoid stalling tactics, and keep the process moving;
- Go beyond the checklists, requiring complete Part 3 analyses on long assessment forms, whenever appropriate;
- Use an EIS scoping session to get early comments and ideas from the public and to clarify specific project alternatives;
- Focus the scoping outline on critical issues, rather than just adding every possible category and loading up documents with boilerplate text and unnecessary information;
- Emphasize quality of information, not quantity of pages, with each major section having a clearly written concluding summary for easier public review; and
- Concentrate on meaningful design alternatives, carefully outlining expectations in the scope, and making sure that the alternatives are not merely designed to justify the preferred proposal or present options that are deliberately not feasible.

## CASE STUDY OF AMENIA, NY

*Incorporating Natural Resource Data into the Town of Amenia Comprehensive Plan and Zoning Law of 2007*

Beginning in 2003, the Comprehensive Plan Committee of Town of Amenia, NY set about updating the outdated Comprehensive Plan and Zoning Ordinance. The most frequent observation during numerous public input sessions was that the natural resources and scenic beauty of Amenia is what sets it apart and is the key to future prosperity. To this end, a primary policy statement in the updated Comprehensive Plan is: "... this Comprehensive Plan Update is essentially about making Amenia more sustainable: that is, enabling Amenia to grow and prosper without depleting or destroying the environmental, historic, and visual resources that form the basis of that prosperity."<sup>2</sup>

The implementation of such a policy assured much discussion and the conclusion was to create both: an overall pattern for future development, via the use of zoning district and overlay maps that reflect the underlying resources and the desire to concentrate development in the appropriate locations; and a development permit, application and planning process that requires, as a first step in the process, the documentation of a site's natural resources and a thorough review of the proposed impacts.

Starting at the level of a building or zoning permit application, applications are required to include a map, survey or scaled plot plan indicating not only the detailed construction and landscaping plan, but also wetlands, watercourses, slopes in excess of 15 percent, and biodiversity mapping.

A "conservation analysis" is required as part of any "Sketch Plan" submission for a major subdivision and may be required by the Planning Board for a minor subdivision. As detailed in Town of Amenia Zoning Law, the analysis shall show lands with a conservation value on the parcel and within 200 feet of the boundary of the parcel, including but not limited to the following:

- Wetlands, watercourses, slopes 15 percent to 30 percent and slopes over 30 percent;
- Prime and statewide important farmland soils, land in active agricultural use, trail corridors, scenic viewsheds, public water supply wellheads, park and recreation land, un-fragmented forestland, wildlife corridors and habitats, vernal pools, and historic and archaeological sites,

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<sup>2</sup> Town of Amenia Zoning Law, Town of Amenia, NY Adopted July 19, 2007. Art VII, Sect. 121-54. C. 6.a. p.89 and 90.

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if such areas are specifically identified in the Comprehensive Plan, in the Hudsonia Report, in the New York Natural Heritage Program, in biodiversity maps prepared for the Town by an environmental consulting organization, or in any adopted open space or farmland protection plan;

- Designated overlay zones for stream corridors, aquifers, scenic protection, and floodplains;
- Buffer areas necessary for screening new development from adjoining parcels;
- Stone walls and individual trees or forested areas containing trees that are 18” diameter at breast height (dbh) or larger;
- Land that has been disturbed or altered in the past and therefore may be more suitable for development (this does not include land disturbed by an applicant prior to applying for a development approval); and
- If identified by the Planning Board or the Town’s planning consultant in the course of the pre-application discussions, other land exhibiting present or potential future recreational, historic, ecological, agricultural, water resource, scenic or other natural resource value.<sup>3</sup>

In the course of pre-application conferences, the analysis should result in a determination of the most important conservation aspects, including ecological connections to adjacent parcels. The instruction to the Planning Board is to: “take into account the purposes of this Chapter and of the various overlay districts, the recommendations in the Amenia Comprehensive Plan, and the Town’s goal of protecting biodiversity.”<sup>4</sup>

Although the list may initially appear dauntingly complex and seem to require the services of experts for even the smallest application, this is not the case. Mapping resources are freely available on-line, both from the county's Natural Resource Inventory web pages, and access to the ArcStudio GIS application available on Dutchess County's intranet, through the Town's public access computer. More resources are available through the Town's website, including all zoning maps and the maps created in 2006 by Hudsonia, Ltd., the *Significant Habitats of the Town of Amenia*. Furthermore, the Town advises applicants to consult with the Dutchess County Soil and Water Conservation District, Dutchess Land Conservancy and Cornell Cooperative Extension Dutchess County. These resources should enable any property owner to assemble the required information. Larger projects, requiring SEQR review, are now well informed at the beginning of the process, obviating much of the contentiousness that often accompanies applications in which a considerable, up-front investment in

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<sup>3</sup> Town of Amenia Zoning Law, Town of Amenia, NY Adopted July 19, 2007. Art.V, Sect. 121-20. A. 1. p.40.

<sup>4</sup> Town of Amenia Zoning Law, Town of Amenia, NY Adopted July 19, 2007. Art. V. Sect. 1221-20. A.2. p.40-41.

## Chapter 9: Ecological Implications for Local Decision-Making

planning is made.

In order to assure that the standards of the Zoning Code are followed equitably, the Town of Amenia Planning Board retains environmental consultants for large projects and requests comments from the Conservation Advisory Council (CAC) as appropriate. The town planning process has gone from one of contentiousness to collaboration, largely due to the active and prolonged input from the community. The strong emphasis on good planning has become a source of great pride to the community.

## POLICY IMPLICATIONS FROM EACH NRI CHAPTER

### Chapter 2: Climate and Air Quality

Businesses and municipal leaders need to start planning for climate adaptation, or planning for the changes to the climate that will occur, taking into account future risks. Changes to the type of crops grown and tree species that may predominate with higher temperatures will affect agriculture; hotter and more violent swings in weather will affect risk management, emergency response planning, and the insurance industry, and individual residents planning for disruptions to utility service and transportation systems.

- Adopt a local climate change action plan that describes the policies and measures that the municipality will enact to reduce greenhouse gas emissions and adapt to climate change. One example is a program through the New York State Department of Environmental Conservation, for communities to adopt the New York State [Climate Smart Communities Pledge](#);
- Work on long-term infrastructure planning that takes into account changing climate models for precipitation, sea level rise and rising temperatures and their possible impacts on drinking water supplies and water treatment plants, roads and bridges, and energy supplies;
- Establish and enhance riparian buffers and protect wetlands and open space in order to prepare for possible increased high-intensity storm events;
- Work with private forest owners to protect and sustainably manage forested areas;
- Include protection of open space, biodiversity, and wetlands/watercourses in comprehensive plans, zoning and local ordinances, and incorporate smart growth and low impact development principles into planning decisions;

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- For more adaptation strategies, see the NYS Open Space Conservation Plan, Climate Change Adaptation Recommendations, see: [http://www.dec.ny.gov/docs/lands\\_forests\\_pdf/osp09chapter3a.pdf](http://www.dec.ny.gov/docs/lands_forests_pdf/osp09chapter3a.pdf).

Ozone and particulates are two of the leading causes of air pollution in Dutchess County. They are predominantly caused by fossil-fueled vehicles and the burning of fossil fuels. Policies that encourage a reduction in the number of vehicle miles driven and discourage burning will help to better our air quality. Some examples include:

- Establish zoning and land use planning that discourage suburban sprawl and promote mixed use development in walkable, compact Priority Growth Areas of a half-mile in radius, and greenway linkages between destinations that can be walked or bicycled;
- Restrict emissions from and reduce usage of outdoor wood burning furnaces, which can produce high concentrations of particulates;
- Require sealing mechanisms on gas pumps to reduce the escape of Volatile Organic Compounds, a precursor to greenhouse gases, when pumping fuel;
- Promote efficiency in home heating systems and maximize insulation in new and existing homes to reduce consumption of fossil fuels.

## Chapter 3: Geology and Topography

Knowledge of a community's geology and environment is a critical component in formulating a community vision as expressed in planning efforts.

- Identify the location of limited or pristine resources, such as mineral resources, in order to protect their finite quantities;
- Limit development on steep slopes, which have a grade of greater than twenty percent, due to the potential impact on pre-existing development in the lowlands as well as drive up the cost of development;
- Protect viewsheds – which are determined by the local topography - as cultural resources that can be damaged by inappropriate development. Enact Ridgeline Protection Zones or Scenic Overlay Zones to direct new development away from highly visible areas to those that are more concealed;

## Chapter 4: Soils

Soil is a fundamental resource that makes it possible for us to use and live on the land. Knowledge of soil's unique and varying characteristics can lead to appropriate choices about where to locate activities that capitalize on and do not squander this resource.

- Avoid soil depletion at all costs, since soils take thousands of years to form and once depleted or destroyed, it will take a very long time to replace them;

## Chapter 9: Ecological Implications for Local Decision-Making

- Protect prime and statewide important agricultural soils, whose characteristics allow the highest yields when planted with crops. Due to the limited availability of these soils, development should be diverted to less valuable sites, to allow continued farming in areas with agriculturally important soils;
- Understand the implications of soil permeability for site development and groundwater protection. Soil impermeability is a key factor for effective residential septic disposal system operation. Too much development in an area of low permeability can lead to water pollution and health threats. By mapping areas of soil impermeability, the most appropriate development densities for each soil type can be specified;
- The construction and agriculture industries can adopt environmental practices for excavation that reduce erosion of soils.

## Chapter 5: Water Resources

Although our surface water and ground water resources are abundant, well-integrated land and water management plans are necessary to protect this resource vital to our existence. Proper watershed management can assist in protecting infrastructure, reducing flood damage, and developing a stream stewardship ethic. In doing so, our resource will not be squandered nor destroyed through pollution.

- Municipalities should measure water resources through continued monitoring of stream gauges and testing of wells;
- Municipalities should minimize inter-basin water transfer (where water from an aquifer in one watershed is transferred to another, limiting water recharge) through well-designed on-site and sewage treatment plans;
- Zoning should consider soil permeability when the establishing limits on the density of development, so that all parcels have access to clean drinking water in the future;
- Municipalities should review and adjust their use of de-icing chemicals to minimize undissolved salt residues in surface and groundwater;
- Municipalities may want to consider establishing wetland protection ordinances for those significant wetlands that are not currently regulated by State or Federal law.

## Chapter 6: Biological Resources & Biodiversity

Protecting biodiversity does not happen simply by protecting one or two rare or endangered species in a community. All nature is interrelated, and the first steps a community can take to protect their flora and fauna is to identify areas where the threats to nature are few. From this very general starting point, areas of habitat significant for its uniqueness, or for its ability to support rare or endangered species can be identified and mapped. When combined with identification of significant cultural resources like agricultural and recreational lands, and a set of conservation priorities and

## Chapter 9: Ecological Implications for Local Decision-Making

protection strategies, a community can develop an Open Space Plan, which is one of the foundation components for a Zoning Law.

- Municipalities may want to undertake a Biodiversity Assessment to identify significant flora and fauna, and work through community discussions to prioritize those natural resources and environments most important to the community;
- Municipalities may want to set conservation strategies for the identified resources, which may include zoning restrictions, recommendation of properties for conservation easement or purchase, or community-wide Transfer of Development or Purchase of Development Rights programs;
- Municipalities may want to minimize landscape fragmentation through zoning ordinance and subdivision review, since it is important to protect large, unbroken areas of significantly biodiverse habitats;
- Municipalities can participate fully in programs that provide assistance for biodiversity protection, including through the Open Space and Farmland Protection Program, Hudson River Greenway Compact, and Hudson River Watershed Alliance.

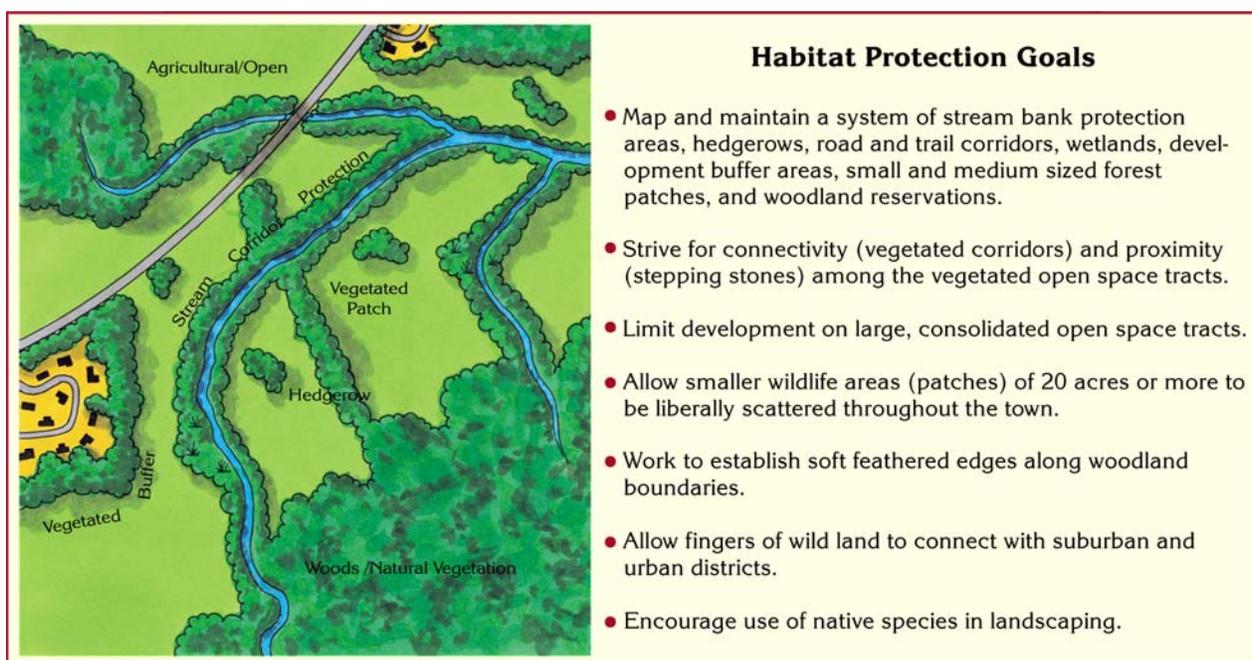


Figure 9.11. From the Greenway Guide on Connected Habitats.

## Chapter 7: Designated Significant and Protected Areas

- Municipalities may want to undertake local biodiversity assessment/habitat mapping to better understand the significant areas in their communities;

## Chapter 9: Ecological Implications for Local Decision-Making

- Many municipalities have adopted local ordinances to protect sensitive habitats – others may want to consider using these tools;
- Municipalities can incorporate protection into comprehensive plans, open space plans, and farmland protection plans;
- Communities may want to identify additional [Critical Environmental Areas \(CEAs\)](#) in their municipality, and submit them to the NYS DEC for official designation. According to the DEC, following this designation, “the potential impact of any Type I or Unlisted Action on the environmental characteristics of the CEA is a relevant area of environmental concern and must be evaluated in the determination of significance prepared pursuant to Section 617.7 of SEQR” (DEC, 2010).

## CONCLUSIONS

This chapter connects the NRI to the larger plan for sustainable regional planning in Dutchess County based on the county’s Greenway Compact program, *Greenway Connections*, the proposed Centers and Greenspaces guide, and local planning tools and regulations. Building on the Case Study of Local Land Use Planning in Amenia, communities can begin to use the NRI as a decision-making tool by considering the following steps:

- Based on the information in the NRI and locally-relevant natural resource data, develop a set of goals and strategies for the conservation of significant natural features, landscapes, and habitats;
- Communities should also assess existing and proposed land use conditions, including priority growth areas for future development and priority greenspaces;

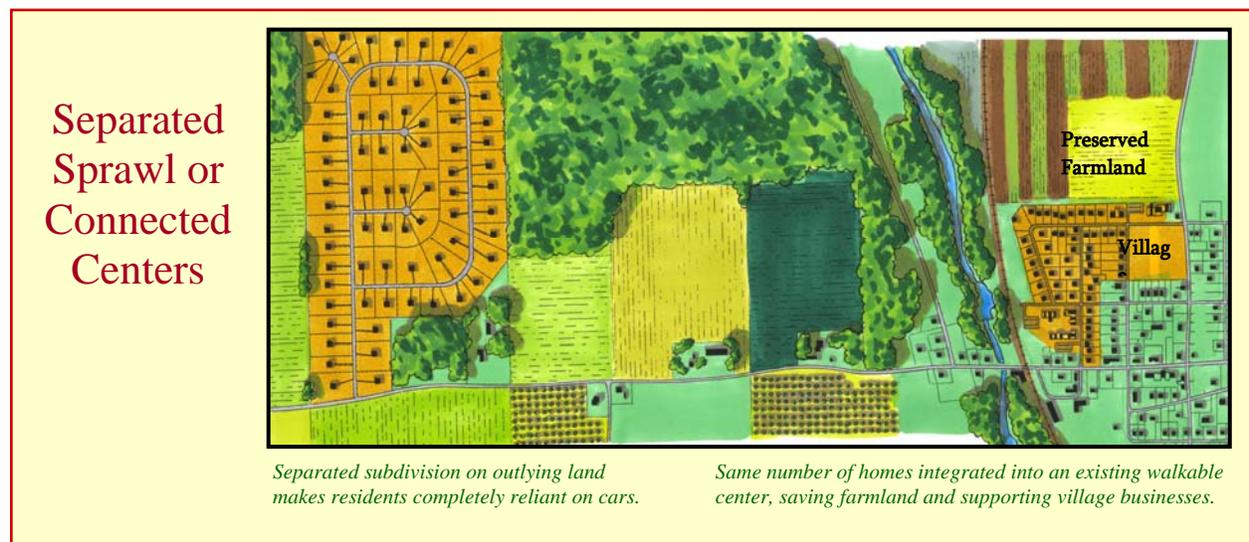


Figure 9.12. Focusing development in priority growth centers.

## Chapter 9: Ecological Implications for Local Decision-Making

- Use the NRI and other referenced sources as a baseline of information to assess the environmental impacts of proposed activities;
- Use the NRI and local natural resource data to identify critical areas for protection, such as wetlands, floodplains, or prime aquifer recharge areas;
- Identify threats to natural resources and plan for conservation and mitigation;
- Develop comprehensive plans that incorporate the concepts and information provided in the natural resource inventory; and
- Consider whether local natural resource conservation policies, such as planning and zoning board procedures, zoning laws, and other regulations, need to be revised and/or adopted.

The authors of the NRI chapters and agencies involved in developing the NRI sincerely hope that this document will provide municipal officials with the necessary information and tools needed to make successful decisions, respecting natural and human ecosystems.

## RESOURCES FOR ADDITIONAL INFORMATION

- American Farmland Trust: Guide to Local Planning for Agriculture in New York: <http://www.farmland.org/resources/publications/default2.asp>.
- Cary Institute of Ecosystem Studies: <http://www.caryinstitute.org/>.
- Congress for the New Urbanism: <http://www.cnu.org/>.
- Cornell Cooperative Extension Dutchess County (CCEDC): <http://ccedutchess.org> (Environment and Energy Program) and CCE, Ithaca, NY <http://cce.cornell.edu> (information on environment and natural resources and community and economic vitality).
- Dutchess County Department of Planning & Development website: <http://www.co.dutchess.ny.us/CountyGov/Departments/Planning/16138.htm>
- Dutchess Land Conservancy: <http://www.dutchessland.org/>.
- Hudsonia, Ltd.: <http://hudsonia.org/>. Hudsonia conducted environmental research, education, training and technical assistance to protect the natural heritage of the Hudson Valley and neighboring regions.
- Land Trust Alliance: <http://www.landtrustalliance.org/conservation/landowners/conservation-easements>.
- Minnesota Department of Natural Resources, 2001, Natural Resource Guide: A guide to Using Natural Resource Information in Local Planning: <http://files.dnr.state.mn.us/assistance/nrplanning/community/nrig/fullguide/overview.html> (accessed November 2010).
- New York State Department of Environmental Conservation (DEC): 2009 Open Space Conservation Plan: <http://www.dec.ny.gov/lands/47990.html>.
- New York State Department of Environmental Conservation (DEC): State Environmental Quality Review Act: <http://www.dec.ny.gov/permits/357.html>.
- New York State Department of State: Provides Land Use training and technical assistance at <http://www.dos.state.ny.us/LG/lut-index.html>.
- New York State Hudson River Valley Greenway: <http://www.hudsongreenway.state.ny.us/home.aspx>.

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- New York State, Smart Growth Communities: <http://smartgrowthny.org/>.
- 1000 Friends of Minnesota, Conservation Design Scorecard:  
<http://www.1000fom.org/sites/default/files/ConservationDesignScorecard1000FOM.pdf>.
- Pace University, Land Use Law Center: [http://web.pace.edu/page.cfm?doc\\_id=23239](http://web.pace.edu/page.cfm?doc_id=23239)  
provides access to local land use tools and strategies and model ordinances through the Gaining Ground Information Database.
- Scenic Hudson: <http://www.scenichudson.org/>.
- Smart Growth Network: <http://www.smartgrowth.org/>.
- Winnakee Land Trust: <http://www.winnakeeland.org/>.

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