



Community Strategies for Vermont's Forests and Wildlife

A Guide for Local Action

VNRC Vermont Natural Resources Council

Community Strategies for Vermont's Forests and Wildlife: A Guide for Local Action

Prepared by the Vermont Natural Resources Council

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This guide was written primarily by Jamey Fidel and Kate McCarthy of the Vermont Natural Resources Council (VNRC) and Sharon Murray of Front Porch Community Planning and Design, with assistance from Elizabeth McDonald, Véronique Meyer, Brian Shupe, and Emma Zavez. Technical illustrations by Jeannie Sargent.

VNRC would like to thank those who contributed to this document:

Ginger Anderson, *Vermont Department of Forests, Parks, and Recreation*
Elise Annes, *Vermont Land Trust*
John Austin, *Vermont Fish & Wildlife Department*
Russ Barrett, *Vermont Department of Forests, Parks, and Recreation*
Joss Besse, *Vermont Department of Forests, Parks, and Recreation*
Faith Ingulsrud, *Department of Housing and Community Development*
Jens Hilke, *Vermont Fish & Wildlife Department*
Seth Jensen, *Lamoille County Planning Commission*
Chris Sargent, *Two Rivers-Ottauquechee Regional Commission*
Steve Sinclair, *Vermont Department of Forests, Parks, and Recreation*
Eric Sorensen, *Vermont Fish & Wildlife Department*
Keith Thompson, *Vermont Department of Forests, Parks, and Recreation*
Kate Willard, *Vermont Department of Forests, Parks, and Recreation*
The Mad River Valley Forests, Wildlife and Communities Steering Committee

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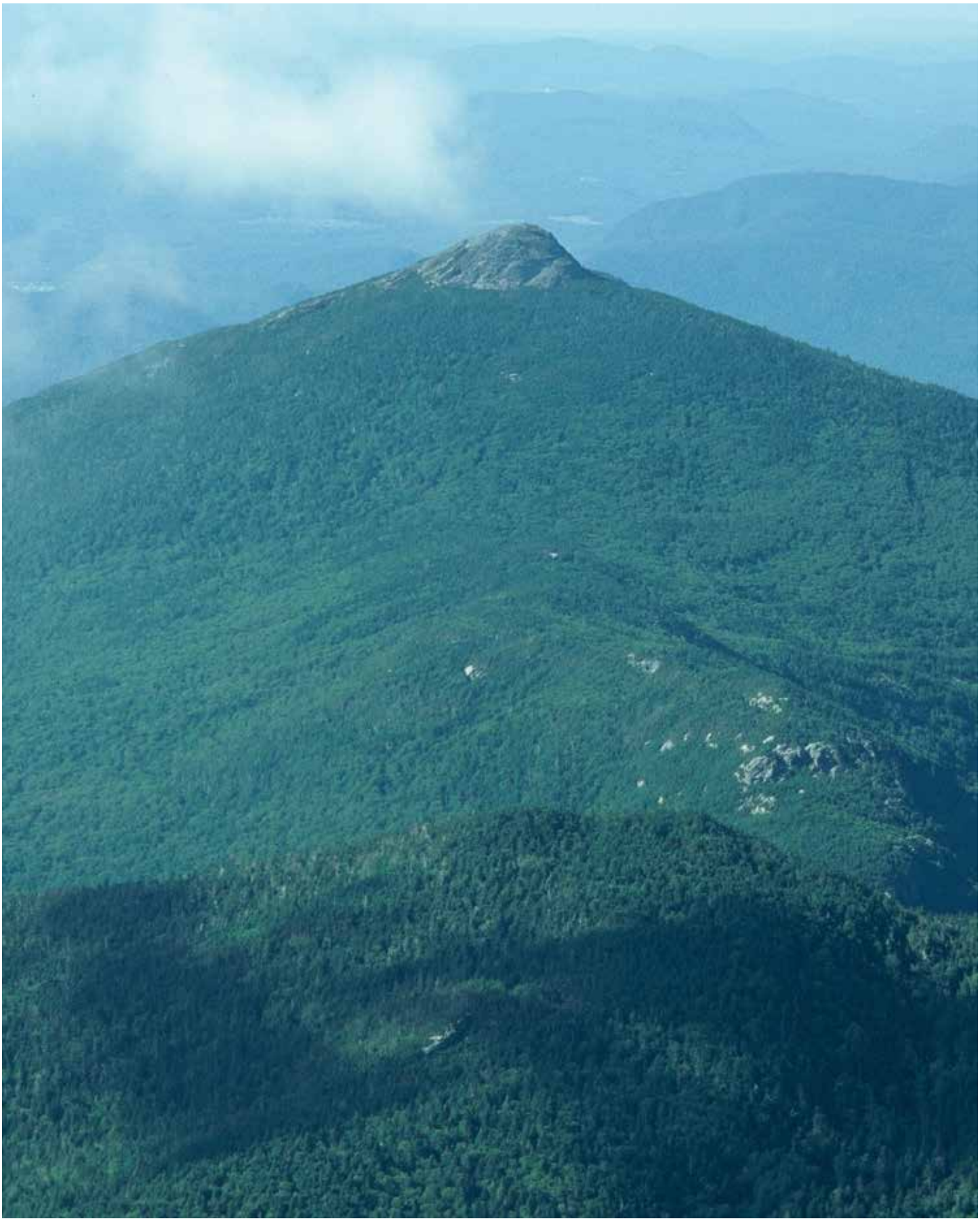

A. Blake Gardner

1. Introduction

Vermont's landscape features expansive swaths of forests that are an integral part of Vermont's identity. From sugar making to leaf peeping, hiking, hunting, watching wildlife, or managing a woodlot, the opportunities to use and enjoy Vermont's forests are endless.

Since approximately three quarters of Vermont is forested, it can be easy to take our forests for granted. Forests are easily accessible and Vermonters rely on them as places of recreation and scenic beauty. Tourists and many businesses rely on them too, which means that Vermont's economy depends, in part, on the continued existence of large forest blocks.

Keeping Vermont's forests healthy and intact requires attention since daily decisions at the local level can negatively or positively affect their overall wellbeing. For example, a landowner may decide to subdivide his or her forestland, a local selectboard may approve road upgrades to allow for more development, a local land trust may purchase a property to conserve public access, or a group of citizens may vote to approve the creation of a municipal forest.

This publication is a guide for communities to take local action to ensure the future of their forests and wildlife. It is designed to provide planning and conservation commissions with concrete strategies (both regulatory and non–regulatory) to keep forests intact. The strategies described below, presented as a series of topic papers, are intended to assist local government bodies with crafting municipal policies – and more importantly – implementing those policies through concrete action. It is hoped that landowners and community organizations will also act on the strategies in this publication.

Please select the strategies that are a good fit for your community, but keep in mind that before enacting a specific strategy – especially a regulatory one – it is important to seek input from the town attorney. Depending upon the strategy, the staff at state or federal agencies, regional planning commissions, Vermont Natural Resources Council (VNRC), or private planning consultants can also advise on planning and zoning decisions or provide guidance on development, conservation and land management issues.

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2. Status of Forestland in Vermont

Vermont's Forest Landscape

Vermont is the third most forested of the lower 48 states[1] with approximately 4.6 million acres of forestland. The overwhelming majority of the state's forestland is privately owned (86%), while the rest is publicly owned (either at the municipal, state, or federal levels).[2]


Paul Moody

Vermont's forests range in size from very large intact areas – such as those that make up the Green Mountain National Forest and other public and privately owned forests such as parts of the Northeastern Highlands – to small quarter acre backyard woodlots. As would be expected, parcel sizes vary, but mapping by the Vermont Agency of Natural Resources demonstrates that there are 4,061 intact "habitat blocks" in Vermont. A habitat block is defined as an area of natural cover that is surrounded, or not encroached upon, by roads, development and/or agriculture. The blocks are mostly forested, but are described as "habitat" blocks since they also include wetlands and shrublands that are important for wildlife. The largest of these blocks is 154,564 acres surrounding the Nuhlhegan Basin, but the average size is only 1,131 acres, reflecting the large number of much smaller blocks. These areas are integral to maintaining the overall health and viability of forest resources in Vermont.

Maintaining forestland in adequately sized, intact blocks is an important policy goal in Vermont. While in 2009 the median size of an individual parcel of land in Vermont was less than two acres, 71% of Vermont's overall land area is made up of parcels 50 acres or larger.[3] Thus, while many people own small parcels of land, looking more broadly across Vermont, much of the state's land base is contained in large parcels.

Since 3.4 million acres of privately owned land in Vermont is in parcels over 50 acres in size, these parcels are likely large enough to contribute to the myriad functions provided by relatively intact forestland.[4] These functions deliver various public benefits, including economic benefits, such as providing forest products and energy resources, and ecological benefits, such as maintaining intact wildlife habitat and protecting water supplies and watersheds.

Forest Parcelization in Vermont

When forestland is broken up into smaller parcels it is referred to as "parcelization" and the result is typically an increase in the number of people who own the original piece of land. This land ownership pattern can result in new housing and infrastructure development (roads, septic, utility lines, etc.). When this development occurs, it "fragments" the landscape, and depending on the location and scale, can negatively affect plant and animal species, wildlife habitat (called habitat fragmentation), and water quality. It can also affect the contiguous ownership and management of forest parcels, and thus the viability of large tracts of forestland to contribute to Vermont's rural economy.

Though it can be hard to notice on a day-to-day basis, within Vermont, the parcelization trends are rather dramatic. For example, the number of parcels in Vermont increased from 61,900 parcels in 1983 to 88,000 in 2008, with the increase occurring predominately in smaller parcel sizes.[5] In Vermont, much of this parcelization is associated with residential development. Recent data demonstrate that the development of housing on previously undeveloped forestland has increased. For example, the amount of forestland in parcels 50 acres or larger that was undeveloped decreased by about 34,000 acres between 2003 and 2009.[6] This is significant since the majority of these lands were developed with one or more new homes, along with new roads, driveways and utilities, reducing the intact nature of forestland in Vermont.


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Increasing parcelization in Vermont reflects a national trend of more people owning smaller pieces of forestland.[7] At the regional scale, between 1980 and 2005, approximately 23.8 million acres changed hands in the Northern Forest, an area nearly equal to the entire 26 million acre region.[8] While many of these transactions may have involved the same parcel of land, these transactions indicate a trend that has helped to drive an increase in land values in the region.

Causes of Parcelization

There are many causes of parcelization in Vermont, but perhaps the greatest driver may be escalating property values and land prices. As land values and development opportunities increase, landowners have greater incentive to subdivide and develop their property. Within Vermont, the average value of land rose at a higher rate than the national average from 1990 to 2007,[9] and according to assessment records, the value of forestland in parcels 50 acres or larger appreciated significantly in recent years, increasing from an average value of $930 per acre in 2003 to $1,615 in 2009.[10] These higher market values make it more difficult to own forestland for non-development purposes, and it also influences the rate of subdivision of larger parcels.[11]

There are other factors that drive forest parcelization as well, including:

- **Increasing property taxes.** Increasing land and property valuations, along with higher school and municipal spending, have led to rising property taxes. In some areas of Vermont, property tax rates have increased significantly.[12] This can put additional pressure on landowners to divide and sell a portion of their land. Not surprisingly, the National Woodland Owner Survey conducted by the United States Department of Agriculture (U.S.D.A.) Forest Service lists property taxes as the number one concern among landowners.[13]

  In Vermont, the state offsets property taxes by providing income sensitivity payments to lower income residents, but landowners who own large tracts of forested open space are not eligible for this payment.[14] Landowners who are "land rich and cash poor" feel the pressure of rising property taxes, unless they are have taken measures to reduce their property tax burden by enrolling in a local tax stabilization program or Vermont's Use Value Appraisal (UVA) Program (commonly called "Current Use)." Approximately 40.4% of all eligible forestland was enrolled in the Current Use Program as of 2008.[15] This is a significant accomplishment, yet it indicates that there is still a large percentage of forestland that remains vulnerable to property-tax-driven development pressures.

- **Changing demographics and lack of estate planning.** In addition to escalating land values, the aging population of forestland owners also contributes to parcelization. In the United States, as much as 25% of all privately owned forestland is owned by people who are 65 or older.[16] While estate planning can provide ways to keep forestland intact among successive generations of forest owners, the will of a deceased landowner often divides the ownership of land into smaller parcels for purposes of bequeathing the land to multiple children. This leads to the parcelization of forestland unless the landowner has provided a way to keep the land intact.[17]

- **"Exurbanization."** Another driver of forest parcelization is people's desire to either relocate or purchase second homes in rural settings where land is relatively cheap compared to urban real estate markets. This trend, known as "exurbanization," is defined as the migration of urban residents to rural environments.[18] Rather than buying rural land for traditional uses such as timber and agriculture, more people are developing private residences a long distance from towns and services in order to maximize privacy and views. The demand for high-end homes in Vermont is contributing to the increasing parcelization of forestland.

- **Inadequate land use planning and regulation.** The rate of development (measured in housing units and developed acres) in Vermont is increasing twice as fast as the state's population.[19] This problem is compounded by the fact that population growth is occurring mostly in rural areas (defined as communities with fewer than 2,500 residents), where forestland and other working and undeveloped lands are concentrated and at risk of parcelization.[20]

  Part of the problem is that many municipalities value local forests, but have limited regulatory strategies for addressing the maintenance of forestland. For example, despite the fact that 87% of town plans identify forests as a valuable habitat type, a small percentage of municipalities that have zoning bylaws include a specific district that is geared towards the maintenance of forestland, such as a forest reserve district.[21] Furthermore, only approximately half of all municipalities in Vermont have subdivision regulations.[22] These deficiencies highlight land use trends that contribute to the parcelization of forestland resources.

The Benefits of Forestland: What is at Stake?

The loss of Vermont's forestland can have real implications for communities and landowners who want to see the forest for the trees. Without sound planning and strategy development, the integrity of our forests and Vermont's rural economy can suffer. For example, maintaining the integrity of our forests is critical to sustaining billions of dollars in revenue from our tourism and rural economy. Forest-based manufacturing, recreation, and tourism employ approximately 13,000 Vermonters and bring about $1.5 billion to the state every year.[23]


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Vermont's forestlands also provide a rich array of eco-

logical functions and wildlife habitats. Intact blocks of forests provide habitat for a wide variety of species, and maintaining connectivity between large forest areas can ensure that wildlife species are able to travel between habitats and adapt to climate change. In addition, healthy forests protect water supplies, absorb precipitation, and filter water, thereby enhancing flood resilience and water quality in other parts of the watershed.

These ecosystem services are hard to quantify and easy to take for granted. When it comes to considering "value," looking at a single example gives us a rough estimate of their monumental importance. Vermont's forests are estimated to remove more than 75,000 metric tons of carbon (about as much as emitted by 14,000 light cars in a year) and 1,610 metric tons of other pollutants from the atmosphere each year – a function that would be worth about $16 million if it was paid for out of pocket.[24]

Since forests have a huge capacity to sequester and store carbon, keeping our forests as forests is a surefire way to battle climate change. Several years ago, a Governor's Commission on Climate Change reported that reducing the conversion of our forestland to non-forest uses would be one of the most effective policies to reduce the effects of greenhouse gas emissions in Vermont. In fact, the commission's goal of reducing the conversion of Vermont's forests by 50% by 2028 would have, perhaps, the highest measurable result of the 38 policies that were endorsed.[25]

Still, satellite imagery data shows we are moving in the wrong direction and are beginning to lose our forests in a noticeable way for the first time since the state was largely cleared in the first half of the 19th century. Certain data show that we lost a half percent of Vermont's forests on an annual basis between 1992 and 2002.[26] Chittenden County alone experienced a 4.4% reduction in forestland during a fifteen-year period from 1982 to 1997.[27] If such numbers are true, this means that we are beginning to whittle away at the integrity of our forests. The solution? We need to work together and take advantage of strategies to reduce the parcelization and conversion of forestland in the state.

What Can Be Done?

Vermonters need to take strong action to maintain the integrity of the forests that support our environment, our economy, and our sense of place. And it truly must happen at the local level. Contrary to common belief, recent studies highlight that Act 250, the state's land use law, only reviews a very nominal amount of subdivision activity and residential development in Vermont.[28] This means that many decisions that affect the integrity of our forests happen at the community level. Along with the decisions made by individuals, local officials – selectboard members, planning commissioners, conservation commissioners, and others – play a critical role in shaping land use in Vermont.

This guide provides concrete strategies to assist Vermont communities. We encourage communities to use the pages that follow to learn about the wide range of regulatory and non-regulatory options for maintaining the integrity of forests and keeping large blocks connected and intact for a range of forest functions and wildlife. Many communities will need to implement a range of strategies to achieve the right balance that implements the community's vision with public support. We wish you success as you set a path for the future of your forests!

Tim Seaver

3. Planning for Forests and Wildlife

This guide is full of diverse options for helping communities protect, manage, and conserve their forest and wildlife resources. But before deciding what strategies make the most sense, a community needs to develop a comprehensive view of its values and goals, understand what natural resources it has present, and identify the threats those resources face.

This is where planning comes in. Municipal planning considers how various factors – including land use, transportation, community facilities, and natural resources — shape a town's future, and is an important first step for protecting the resources we care about here in Vermont.

Since the municipal plan provides the policy framework that guides all implementation actions, this section provides a brief overview of planning in Vermont — particularly planning for forests and wildlife.

Planning in Vermont

Municipal Authority to Plan

In Vermont, municipalities are not required to plan, though most local officials recognize the benefits of planning for the future: more than 90% of Vermont communities have adopted a municipal plan within the past five years. Municipal authority to plan comes from the Legislature, through Title 24, Chapter 117 of the Vermont Statutes Annotated ("Chapter 117" for short).

The municipal plan, updated every five years, is a visionary document – a roadmap that articulates what a municipality wants the future to look like, and how it proposes to get there. As a result, the plan is the principal policy document guiding local government decisions. It also provides the foundation for local land use regulation, the capital budget, natural resource conservation policies, energy programs, and other implementation strategies.

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Vermont's State Planning & Development Goals

Chapter 117 (24 V.S.A. §4302) lays out state planning and development goals. These goals guide not only the local planning process and related policies, but also regional and state planning efforts. In addition, the goals apply to the strategies that implement local, regional, and state plans, and several convey the importance of Vermont's natural resources. These include:

- promoting compact settlement surrounded by rural countryside;
- providing a strong economy that maintains high environmental standards;
- identifying, protecting, and preserving important natural and historic features;
- maintaining and improving the quality of air, water, wildlife, and land resources; and
- strengthening agricultural and forest industries.

Required Elements of the Municipal Plan

For municipalities that choose to plan, Chapter 117 (24 V.S.A. §4382) requires that the municipal plan include 12 elements, including several related to natural resources. Requirements include:

- A statement of policies on the preservation of rare and irreplaceable natural areas, scenic and historic features and resources;
- A statement of objectives, policies, and programs to guide the future growth and development of land, public services, and facilities, and to protect the environment;
- A land use plan and map that include a statement of present and prospective land uses, including those areas proposed for forests, recreation, agriculture, open space, and commercial, recreational, and industrial development;
- Transportation, housing, and economic development plans;
- A utility and facility plan.

While listed separately, these plan categories each affect the other, and there are opportunities to talk about forests and wildlife throughout the plan. For example, a community's approach to transportation and road policies can help minimize forest fragmentation and promote safe wildlife

crossing (and safer road conditions for human travelers as well). In addition, local choices about land use – whether through zoning or the extension of services throughout town – also have the potential to affect forest and wildlife resources.


Kate McCarthy/VNRC

Once complete, the municipal plan is the document that *defines* a municipality's goals, and then *provides the policy framework* for advancing those goals. An adopted plan is required for municipalities that choose to enact or revise land use regulations, but *all* implementation actions — regulatory and non-regulatory — must be in conformance with the municipal plan and consistent with the state planning goals (24 V.S.A. §4401). In sum, having a plan that provides clear direction is essential for taking action.

Regional Planning

Municipal plans may be compatible with state planning goals, but it is not a requirement. By contrast, Vermont's 11 regional planning commissions are required, by statute, to develop plans (24 V.S.A. §4348) that are consistent with state planning goals (the regional plan has the same 12 sections as the municipal plan). A municipality may request "confirmation" of its local planning process by its regional planning commission — an optional step, but one that provides communities with access to certain state grants, such as Municipal Planning Grants. In this case, the municipal plan must also uphold the state planning goals, which helps create alignment across regional and local planning.

This alignment is particularly important for forest and wildlife resources. Wildlife is a state resource, and although land use impacts to habitat are (in most instances) only subject to municipal jurisdiction, both wildlife habitat and forest resources must be considered in regional planning because they typically cross town boundaries.

Implementation: Making Plans Real

Planning, however, is only the first step. "Implementation" – taking actions that move a community towards its goals – is what translates a plan into reality. This is why one of the 12 required elements of the municipal plan is "a recommended program for the implementation of the objectives of the development plan" (24 V.S.A. §4382(a)(7)). This element of the municipal plan can be used to prioritize actions within the plan, assign responsibility for those actions, and identify possible funding sources.

There are countless strategies for implementing the town plan, both regulatory and non-regulatory; many of them are included in this guide. The strategies that your community selects will vary depending on your town's goals, but the most success often comes from utilizing a combination of regulatory and non-regulatory approaches. Using the planning process to create buy-in for implementation strategies, and starting to identify how those strategies will be implemented, is key.

Two key implementation strategies discussed throughout this guide are zoning and subdivision regulations. Both are considered regulatory strategies, and state statute gives municipalities the option to use them if they choose. Zoning bylaws were originally developed out of a need to protect public health, safety, and welfare, and they still serve this purpose by shaping how and where land development can occur.[1] About 80% of Vermont municipalities have zoning regulations.[2] Most of these work by defining zoning districts where different uses — houses, car dealerships, day care centers, outdoor recreation, and much more — can occur. Zoning bylaws also regulate physical characteristics of development such as lot sizes, setbacks, and septic system requirements. (Some regulations, known as form-based codes, take a different approach, by first defining a certain pattern of development; the uses that take place there are a secondary consideration.) Subdivision regulations, by contrast, guide the pattern of development for the community (i.e., the division of a parcel of land for sale, development, or long-term lease). In the pages that follow, you can learn more about how these strategies can be used to support local goals for forests and wildlife.

Why Take Local Action?

While it is true that Act 250 and other state programs (for example, wetlands permits, stormwater permits, access permits, etc.) regulate impacts on many natural resources, taking steps locally to manage and protect natural resources is important for several reasons. For instance:

- By taking local action to protect natural resources instead of relying on Act 250, a town can ensure that the resources are considered for both large and smaller projects.
- While the state has jurisdiction over certain natural resources – wetlands are a good example – it does not have the capacity to review all development for its impacts on natural resources, nor can it easily track the incremental and cumulative impacts of development.
- Like other state permitting programs, Act 250 does not fully account for the incremental residential and commercial development that can slowly undermine traditional land use patterns and the integrity of natural resources. In fact, the percentage of subdivisions that go through Act 250 review is quite small: a VNRC review

of eight case study communities found that only 1% of subdivisions (representing less than 8% of the new lots created) triggered Act 250 review. It also found that the average parcel size in subdivisions was between 2.3 and 3.7 acres. This means that a lot of development is occuring incrementally, resulting in small lots that fragment forest and wildlife resources. Fortunately, there is great opportunity through local action to address this trend.

Who Needs to be Involved for Successful Planning and Implementation?

Successful plan development and implementation is a collaborative process, so it is important to know about the different groups that may be involved, their respective roles, and where opportunities for collaboration can occur. Though approaches vary depending on the community, the local boards involved in implementing the town plan are generally the same in each community. As you work to implement strategies for forests and wildlife in your community, think about ways that each group can contribute to the process, and be sure to work early and often with all decision makers to increase your chances of success. A few of the key players include:

Selectboard: The selectboard (or other legislative body, such as the City Council or Board of Aldermen) is the elected body responsible for the general supervision and control over the affairs of the municipality. The selectboard has the authority to adopt a municipal plan and can do the following to implement it:

- Adopt land use regulations (after a public hearing, unless the selectboard or voters opt to submit the regulations to the voters);
- Purchase property, or provide financial support for land conservation projects (with voter approval);
- Adopt a capital budget;
- Propose an annual budget to the voters (after a public hearing).

Planning Commission: A planning commission may be created at any time by a selectboard, and its members are either appointed or elected by the voters (most towns have appointed planning commissions). The planning commission's responsibilities include the preparation of the municipal plan, which can include undertaking studies on a wide range of baseline resources, such as surveying important natural areas in town, identifying wildlife crossings, productive forestland, etc.

VNRC

The planning commission is also responsible for certain aspects of the plan's implementation, including drafting land use regulations. In communities that have not appointed a Development Review Board, the planning commission may also be responsible for administering site plan review under zoning bylaws and subdivision regulations.

Development Review Board or Zoning Board of Appeals, and the Zoning Administrator: The Zoning Administrator and the DRB or ZBA are the entities responsible for review of development proposals. The ZBA reviews conditional use proposals, variance requests and appeals of zoning administrator decisions. DRBs are responsible for these same review processes, as well as site plan review and applications for subdivision approval. Development review involves ensuring that development proposals adhere to certain standards in the zoning and subdivision bylaws, including standards that consider the impact of development on natural resources. Developing natural resources standards that can be readily and fairly administered by the DRB is important to the success of natural resource protection.

Conservation Commission: There are around 100 municipal conservation commissions in Vermont. These local boards serve in an advisory capacity, but do not have regulatory powers. Commission projects often include: conservation, education, policy development, review of development proposals, and natural resource inventory and monitoring. Conservation commissions often participate in drafting municipal plans.

Landowners: Conversations about planning in general, and forests and wildlife in particular, should include community members outside of local government. Working with landowners is essential for understanding community values, articulating issues and goals, and developing appropriate regulations. Furthermore, landscape level planning – which is often necessary for natural resource protection – helps landowners see how individual parcels relate to the larger landscape. Building this understanding is an important part of crafting effective solutions.

The Link to State Level Development Review (Act 250 and Section 248)

A municipal plan is the local voice in state level development review. Therefore, it is important for a municipal plan to have unambiguous policies that define community priorities, including how natural resources should be managed.

The Municipal Plan in Act 250 Review

"Criterion 10" of Act 250 states that projects subject to review must be in conformance with local and regional plan policies. Since plan policies are used in Act 250 review, policy language must be clear. This point was highlighted in the 1994 *Molgano* case before the Vermont Supreme Court. In that case, a project in Manchester was initially refused an Act 250 permit on Criterion 10 grounds, but then allowed to proceed after the Supreme Court determined that the town plan policies were too ambiguous to provide adequate direction.

The Municipal Plan in Section 248 Review

Municipal plans can also affect utility projects. During the review of electric generation, transmission, or telecommunications facilities, statute specifies that, when reviewing applications for Certificates of Public Good, the Public Service Board must give "due consideration" to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality (24. V.S.A. §248).

How to Get Started

Now that you are familiar with the basics of municipal planning, we encourage you to dive into the following chapters, which explore both regulatory and non-regulatory strategies for keeping forestland and wildlife habitat intact. Deciding what strategies are best for your community will depend on numerous factors and local conditions, and we hope that these tools provide you with a menu of options for turning planning into action in your community.

More Information

If you would like more background information, check out the following resources:

- *Conserving Vermont's Natural Heritage: A Guide to Community-Based Planning for the Conservation of Vermont's Fish, Wildlife, and Biological Diversity,* by the Vermont Fish and Wildlife Department. Available at: http://www.vtfishandwildlife.com/library/maps/Community_Wildlife_Program/complete.pdf
- *Essentials of Local Land Use Planning and Regulation,* by the Vermont Land Use Education & Training Collaborative. Available at: http://www.vpic.info/Essentials.html
- *Community Planning Toolbox*, by Vermont Natural Resources Council. Available at http://vnrc.org/resources/community-planning-toolbox/
- The Vermont Planning Information Center's website: www.vpic.info

NON-REGULATORY

4. Conservation Planning

Overview

Conservation planning occurs at all levels of government, and represents a powerful tool for communities to ensure the long-term viability of local and regional forest resources. At the local level, planning for forestland and other natural resources often begins with the planning commission, which develops and updates municipal plans and bylaws. The municipal plan (or "town plan") typically includes a natural resources section that identifies natural resources and issues, and can articulate conservation planning goals. However, the town plan may be supplemented by more detailed "open space" or "conservation" plans (often prepared by or in association with the local conservation commission or other groups) that focus more specifically on the town's natural resource base, including the community's forestlands and wildlife.

Whether a community develops a conservation plan, addresses natural resources in a municipal plan, or tackles more general conservation planning activities, the main idea is to engage in targeted planning that: (a) identifies the location and extent of important resources; (b) sets priorities for resource protection; and (c) recommends strategies for conserving forestlands that are needed to support forestry, wildlife habitat, watershed protection, recreation, and other public values.

More Information

The Department of Fish & Wildlife has an excellent publication that addresses various aspects of wildlife and natural heritage conservation planning: *Conserving Vermont's Natural Heritage: A Guide to Community-Based Planning for the Conservation of Vermont's Fish, Wildlife, and Biological Diversity.* Check it out at: http://www.vtfishandwildlife.com/library/maps/Community_Wildlife_Program/complete.pdf.

Statutory Authority

Communities that update and adopt municipal plans are required, under Chapter 117, to address state planning goals to protect "the long-term viability" of forestlands and related natural resources (24 V.S.A. §4302), and to include local policies and objectives for the protection of the environment and the preservation of "rare and irreplaceable natural areas." In practice, municipalities look broadly at important resources across the landscape, not just at "rare and irreplaceable" ones. The plan must also include a land use section and map that indicates those areas proposed for "forests, recreation…and open space reserved for floodplains, wetlands protection or other conservation purposes" (24 V.S.A. §4382), along with recommended programs to implement the plan. Municipal plans serve as the basis for local land use regulations, ordinances and conservation programs, including forest, conservation and overlay district zoning (24 V.S.A. §4414) and local programs for the purchase of development rights or conservation easements (24 V.S.A. §4431). These plans also serve as the basis for municipal participation in Act 250 and Public Service Board proceedings.

Municipal plans may reference, but generally do not include, more specific parcel or resource-based information needed to identify community conservation priorities and action steps. For this reason, separate "supporting plans" (including open space or forest conservation plans) can be used to guide both public and private conservation strategies (24 V.S.A. §4432). A forest conservation plan, for full effect, should be incorporated by reference in the municipal plan, or adopted as an amendment to the plan. This helps ensure that the supplemental plan is referenced and considered in Act 250 or other proceedings.

Implementation

Mapping and Inventorying Important Resources and Features

Maps and inventories of natural features form the basis for local conservation planning. For forest conservation, it is important to map: natural communities, forest productivity, the location and extent of forest blocks, significant forest and natural resource features, wildlife habitat and travel corridors, parcel boundaries, and the location of conservation easements and lands enrolled in the Current Use Program.

Mapped information needs to be adequately interpreted and adapted for use in the planning process. Often, the intricacies of a given natural resource dataset are not readily apparent to a planning commission and technical assistance from a natural resource professional is helpful in translating specific scientific data into actionable knowledge for the

commission. Bringing mapped scientific data into a form that is usable for land use planning is critically important.

Coarse or statewide focused datasets should be supplemented by more detailed field surveys and local inventories as budgets permit. These are typically conducted by trained professionals, such as consulting foresters, ecologists, and wildlife biologists. However, local residents, with some training, can also help with field inventory and monitoring work. This type of "citizen science" can be useful for projects, such as water quality testing or wildlife roadside tracking, if carried out for several seasons. Field inventories on private land require the written consent of willing landowners. Accordingly, landowner outreach is an important (and often time consuming) part of this process.

Mapping Tools

- **BioFinder:** This is a web-based mapping tool that was developed by the Vermont Agency of Natural Resources for identifying Vermont's lands and waters that support high priority ecosystems, natural communities, habitats, and species. You can use the BioFinder Mapping Tool to explore the distribution and richness of Vermont's biodiversity and help secure Vermont's natural heritage for future generations. You can also download data as shapefiles if you have mapping capabilities. Learn more at: http://biofinder.vermont.gov/.

- **Natural Resources Atlas:** This is a web-based mapping tool that was developed by the Vermont Agency of Natural Resources to provide geographic information about environmental features and sites that the agency manages, monitors, permits, or regulates. It is a good place to start in developing local maps for this purpose and you can download shapefiles if you have in-house mapping capabilities. Learn more at: http://anrmaps.vermont.gov/websites/anra/.

- **Basic Natural Resources Inventory:** This Vermont Fish & Wildlife Department website gives an overview of the types of data that should be including when developing a natural resources inventory and accompanying maps. Please note that this website provides useful guidance about inventories in general and the Agency of Natural Resources' mapping tools. Learn more at: http://www.vtfishandwildlife.com/cwp_inventory.cfm.

For municipalities with in-house mapping capacity, the Vermont Center for Geographic Information (www.vcgi.org) has most information needed for initial inventories of mapped resources. This information is also available through Regional Planning Commissions(www.vapda.org).

- **Forest block and productive forest maps** can be used to promote the retention of working forests by guiding non-regulatory efforts such as encouraging private landowners to adopt forest management plans and enroll in the Current Use Program, and to promote projects with land trusts and other conservation organizations.

- **Habitat connectivity maps** can help promote land conservation where appropriate and guide local management decisions on various issues, such as new road construction, the placement of guardrails, and other road maintenance issues.

- **Ecological inventories** can provide useful information on rare and threatened species, natural communities, critical wildlife habitat, wetlands, and other important resources. Such information can assist with the development of bylaws and regulatory review processes, and can also be valuable for prioritizing non-regulatory conservation and education efforts.

Community Values Mapping

In addition to baseline inventory information, it is also important to understand what forest resources are important to community members. Interested community members might include foresters, hunters, anglers, birders, hikers and other outdoor enthusiasts who are intimately familiar with their own neck of the woods. One way to engage these residents is through "values mapping," an exercise in which participants are asked to identify areas on a map that are important for recreation, timber production, wildlife habitat, hunting, watershed protection, etc. Other useful information to map might include wildlife sightings or known high roadkill areas. Once collected, this information can be overlaid on top of other mapped information to understand and help prioritize parcels for inclusion in both regulatory and non-regulatory conservation and management strategies. The Community Wildlife Program at the Vermont Fish and Wildlife Department can help communities organize a values mapping exercise.

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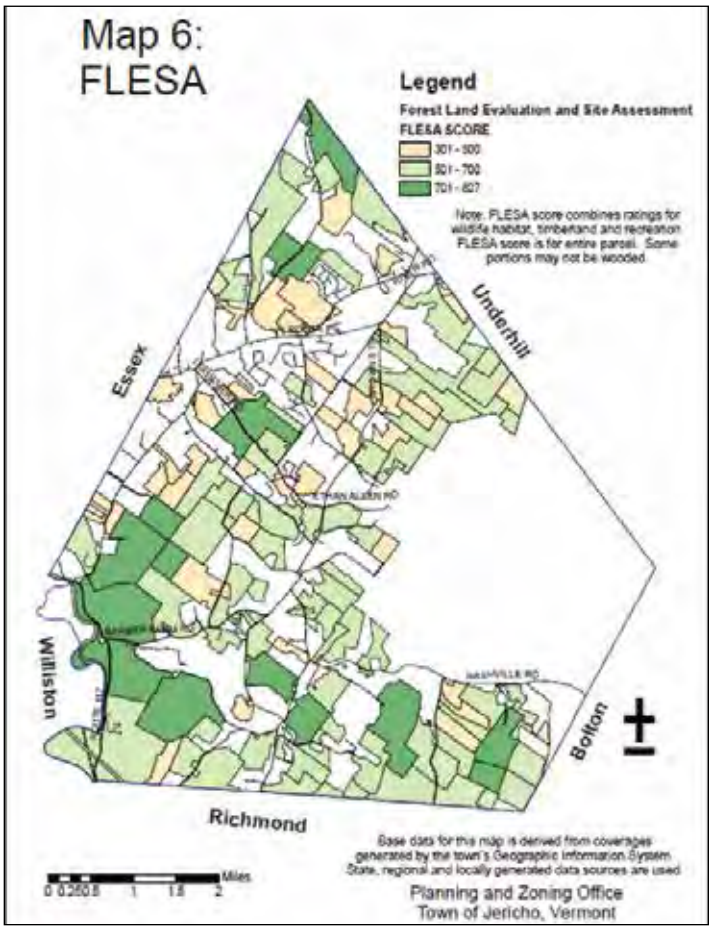
Prioritizing Forestland and Natural Resource Features

Once a community has collected field data and/or conducted a values mapping exercise, it can be helpful to prioritize resources as a way to focus both regulatory and non-regulatory projects, as well as outreach. For example, a municipality can create a Conservation Focus Areas Map, which demonstrates where there are overlapping features of interest. This type of map can help the community decide where to target their conservation and management efforts.

A Forest Land Evaluation and Site Assessment (FLESA), provides another parcel-based method to identify and rank forestlands for conservation. Developed by the Vermont Department of Forest Parks and Recreation in association with UVM Extension, a FLESA is based in part on the Land Evaluation and Site Assessment (LESA) system that was used to identify and rank significant farmland. The FLESA (as a LESA) includes two parts: a "land evaluation" based on physical site characteristics (including acreage, soil and forest type) and a "site assessment" that takes into account other site criteria as defined by the community. Each parcel is then evaluated, weighted and ranked using a point system. This analysis can be done without a GIS-based overlay; however, having an overlay will make the work easier. Because of the focus on parcel-level data, outreach and public participation are essential so that it is clear how information is – and isn't – being used. Several Vermont municipalities have developed FLESAs with the assistance of their regional planning commissions.



Vermont's 1991 FLESA publication, *Planning for the Future Forest: A Supplement to the Planning Manual for Vermont Municipalities,* is no longer in print, but an updated version, *Planning for the Future of Local Forests,* is now available. This new version was developed by the New Hampshire Natural Resource and Conservation Service and is based on the Vermont model. It includes information and recommended criteria for conducing forestland evaluations, and timber, wildlife, recreation, and scenic resource site assessments. The new version is available at ftp://ftp-fc.sc.egov.usda.gov/NH/FLESA/FLESAmanual.pdf.

Build-out Models

Build-out models can be a helpful tool for weighing management decisions that could impact forestland. Build-out scenarios allow planners to discern how much development is allowed under current zoning standards and compare with other hypothetical situations (e.g. if those standards were changed or if new standards were put in place). Output from a build-out study can be analyzed by comparing raw data (i.e. either the maximum, or an average number of allowable units under different scenarios) or through a mapped display (a so-called "measles" map, that places points representing each potential new unit under different scenarios). The latter can be viewed along with mapped natural resource information to help identify where resources are most threatened by potential development, or may be impacted by current or proposed policies and standards.

Build-out analyses of projected developments within a town or watershed can assist with conservation planning efforts and inform the need for additional strategies to limit forest fragmentation. A build-out assessment of rural residential zoning districts is a fairly simple mapping exercise and regional planning commissions can assist with this process.

Once a community has documented its natural resources and forest blocks, and identified those forest areas or resources to conserve, the next step is to identify the most appropriate regulatory and/or non-regulatory approaches and those actions needed to implement the plan, and establish the policy foundation for those strategies in the town plan.

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Things to Consider

Don't forget the regional landscape. Forest resources don't stop at town boundaries; therefore, it is increasingly important to plan jointly with neighboring towns to better conserve and manage shared forest resources. Conservation plans at the local level should be developed in relation to broader regional or "landscape level" understanding, as well as coordinated with regional planning efforts. In the absence of coordinated planning and management, the efforts of one community to conserve forest resources and habitat connectivity can be undermined by the lack of similar efforts in neighboring communities. In these types of situations, the economic and ecological viability of large forest block can be threatened.

Consider creating a steering committee of representatives from multiple towns as part of the forest conservation planning process. This committee could share baseline inventories, pool conservation or management funding, and set priorities for non-regulatory strategies that provide consistency in maintaining important forest resources across town boundaries.

Assess your municipality's capacity. It is useful to take stock of where your municipality stands by asking these questions: How much work has been done? How much is needed? What resources are available? Municipal conservation commissions, by law, are specifically authorized to conduct inventories and studies and develop conservation plans. If your community does not have a commission, request a town vote (or ask the selectboard to vote) for the creation of one (24 V.S.A. §4501).

If baseline natural resource inventories already exist, begin

Case Study

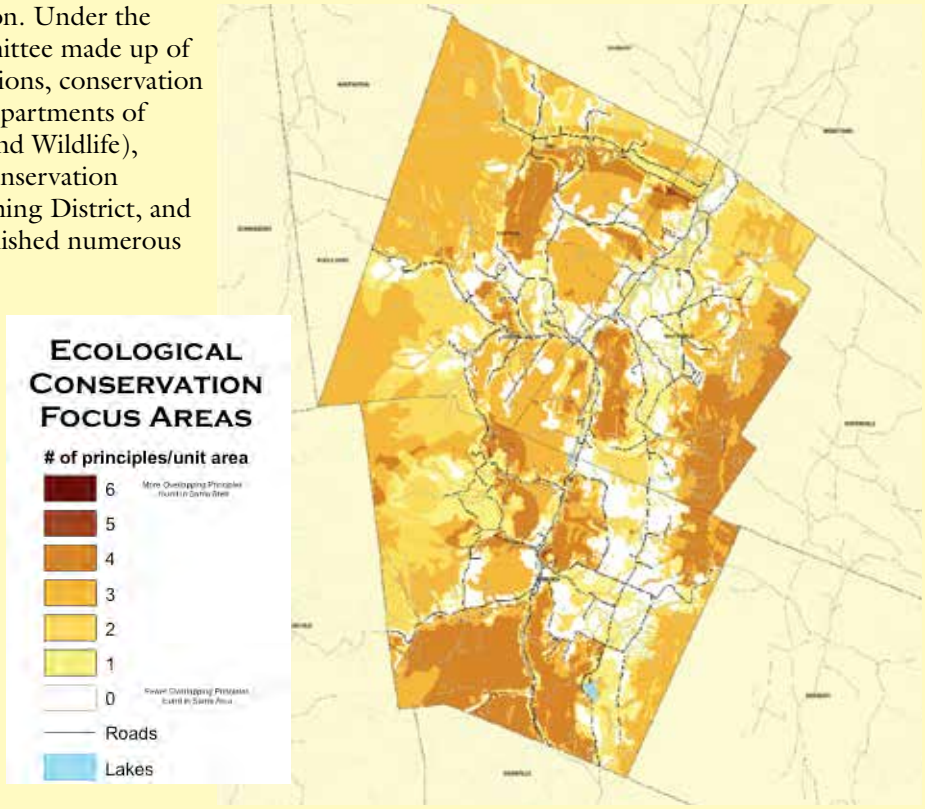
Forests, Wildlife, and Communities in the Mad River Valley

The Forests, Wildlife, and Communities (FWC) project is an exciting collaboration among towns in the Mad River Valley. Started in 2011, the project is an incubator for conservation planning with the vision of implementing a regional and landscape level approach to forestland and wildlife habitat conservation. Under the leadership of VNRC and a steering committee made up of representatives of local planning commissions, conservation commissions, state agencies (Vermont Departments of Forests, Parks, and Recreation and Fish and Wildlife), the U.S. Forest Service, local and state conservation organizations, the Mad River Valley Planning District, and local landowners, the project has accomplished numerous conservation planning initiatives.

When the project started, three towns (Fayston, Waitsfield and Warren) had already collected baseline information through an ecological inventory conducted by environmental consultants. The FWC Steering Committee compiled information from the baseline inventory, and overlaid it with separate maps from a community values forum that was held in the first year of the project. The results showed that the areas that residents identified as important for such things as recreation, scenery, hunting, and hiking were also areas that rated high for ecological significance. Not surprisingly, these areas included large intact forest blocks.

With assistance from the Vermont Fish and Wildlife Department's Community Wildlife Program, the Steering

Ecological Conservation Focus Areas



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prioritizing regulatory or non-regulatory strategies for your town, or partner with adjoining towns to work on landscape level planning. If your town does not have field data or conservation resource maps, seek funding to conduct an inventory, or consider creating a conservation fund within the town to pay for conservation planning.

Work with willing landowners. Given that most forestland is privately owned, it's important to understand and take into consideration the landowner's goals, objectives and concerns, and incorporate these into the planning process. Individual communication and a certain level of trust is necessary to build broad-based community support for recommended conservation strategies and programs that affect private land. In addition, as previously noted, landowner permission is required for most fieldwork, including ecological inventories. Anticipate more landowner outreach than you might expect. This can be challenging, but ultimately very rewarding for both the community and the property owner.

Engage your regional planning commission. Your regional planning commission (RPC) is a key source of conservation planning, mapping, and technical assistance. There are eleven RPCs located throughout the state with staff that can assist with conducting inventories, mapping resources, developing FLESAs and build-out analyses, writing municipal plan and bylaw language, and finding funding for conservation planning.

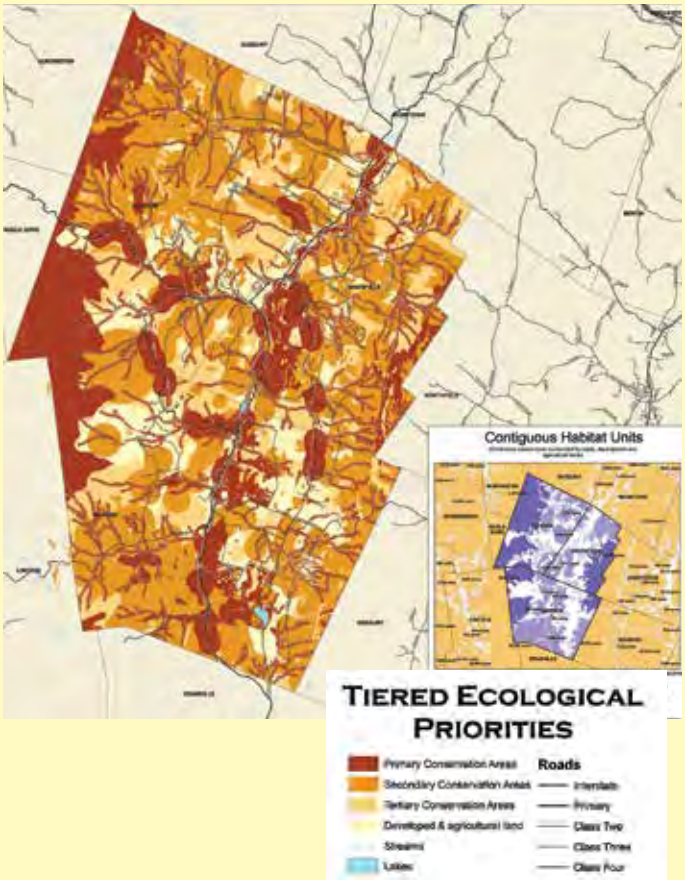
Seek funding from various sources. Municipal Planning Grants, administered through the Vermont Department of Housing and Community Development, provide funding (on a competitive basis) for inventories and planning activities. Contact your RPC for more information.

Committee also created maps that could be used in both the local planning and development review process, and in non-regulatory efforts, such as voluntary land acquisition. The first map, titled "Ecological Conservation Focus Areas" (at left) was designed to overlap ecological principles, such as maintaining large intact areas of vegetation or maintaining connectivity among wildlife habitats, in order to identify areas with multiple principles. The areas that had the greatest number of overlapping principles were identified as priority areas for non-regulatory strategies such as technical assistance to landowners or voluntary land acquisition.

A second map, titled Tiered Ecological Priorities (at right), was designed to influence land use planning and zoning. The map designates certain areas based on their importance for maintaining fish and wildlife populations and biological diversity. Areas labeled Primary Conservation Areas are areas where development impacts should be avoided. Areas identified as Secondary and Tertiary Areas encourage clustered development and limited penetration into sensitive communities. The identification of these priority areas also serves as a reference for planning commissions to designate complimentary zoning districts, such as conservation districts or overlay districts with specific development review standards.

To learn more about the FWC project, and view larger versions of the maps, please go to http://www.mrvpd.org/fwc.php.

Tiered Ecological Priorities



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5. Sustaining Working Forests

Overview

Vermont's forestland is a key element of the state's "working" landscape. Working forests supply Vermont's wood products industry (estimated to generate over one billion dollars annually) and provide economic benefits that allow landowners to keep their land in production.[1] The USDA Forest Service has classified 4.35 million of Vermont as timberland, which means it is fertile and accessible enough to produce wood as a crop, and has not been withdrawn from timber management by statute or regulation.[2] Of this, approximately 80% is privately owned.[3]

Economic components of Vermont's working forests include:

- Professionals in the forest sector;
- Logging and trucking businesses;
- Saw and veneer mills (saw logs, millwork, containers, pallets);
- Pulp and paper manufacturers;
- Wood energy suppliers (cordwood, chips, pellets);
- Makers of furniture and other wood products;
- Associated forest products businesses (e.g., maple syrup, Christmas trees).

It is economically challenging, however, to own large tracts of forestland. Sustainable forest management requires a long-term commitment, while the economic returns on timber and other forest products fluctuate with market conditions and available outlets. Property taxes can be a burden, since the value of forestland (especially if it has development potential) has been rising in Vermont. Many landowners struggle to hold on to their forestland without resorting to some degree of development in order to finance their continued ownership. Communities (through their planning commissions, conservation commissions, tree wardens and local conservation groups) can help alleviate these pressures by supporting programs that maintain working forests.

Implementation

There are various strategies for maintaining and supporting working forests. Some of the most common are presented here.

State and Local Tax Stabilization Programs

Vermont's Use Value Appraisal (UVA or "Current Use") Program, which allows forestland to be taxed based on its use rather than its value for development, is one of Vermont's most successful forest conservation programs. This program (see *Chapter 6, Current Use – Vermont's Use Value Appraisal Program*), reduces the tax burden for participating landowners who agree to maintain and manage their forestland under an approved forest management plan. Municipalities also have the ability, under state law, to enact local tax stabilization agreements with forest landowners. (See *Chapter 7, Local Tax Stabilization for Forestland and Open Space*.)

Forest Management and Stewardship Plans

Much of Vermont's forestland is under some form of active management, given that approximately 40% of eligible

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forestland is currently enrolled in the state's Current Use Program.[4] The Current Use Program, administered by Vermont's county foresters, includes minimum state standards for forest management and regeneration, and requires forest management plans for enrolled land. The majority of forestland enrolled in the program must be actively managed for timber production under approved silvicultural guidelines, but recent program changes also allow for management of "Ecologically Significant Treatment Areas"(ESTAs) that may include old forests, natural communities, rare, threatened and endangered species, riparian areas, forested wetlands and vernal pools that are not subject to forest harvesting.

The voluntary Forest Stewardship Program, also administered by Vermont's county foresters, offers long range planning assistance to forest landowners. These plans are required for woodlands enrolled in the federal Forest Legacy Program, and to receive forestry practice funding through the Natural Resources Conservation Service (NRCS). (See *Chapter 10, Federal and State Assistance Programs.*) Forest Stewardship plans track with planning formats through the Tree Farm Program and can be integrated with UVA plan creation. Guidelines are available from the Vermont Department of Forests, Parks and Recreation.

In order to support long term forest ownership under sound management, communities can encourage landowners to develop forest management plans. These plans guide landowners to identify and understand forest types, habitats, and natural communities to sustainably manage and conserve them. Creating a management or stewardship plan leads landowners to consider the natural and economic values of their woodland over time. This helps to insure that forest landowners or their heirs will not be forced to make exploitive or inappropriate management actions based on sudden awareness of timber or land values.

Though not yet common in Vermont, a few municipalities require the submission of forest management plans under local zoning or subdivision regulations to ensure that important forest resources are sustainably managed. For example, plans might be required in association with the subdivision or development of tracts over a certain acreage, or for forestland within designated forest or conservation zoning districts. A locally required plan, however, may change an existing Current Use Program forest management plan only to the extent that the changes are silviculturally sound, as determined by the state, and to "protect specific natural, conservation, aesthetic, or wildlife features in properly designated zoning districts" (24 V.S.A. §4413).

Conservation Easements

Conservation easements maintain working forests and provide private landowners with tax benefits in return for long-term forestland conservation. Easements allow the landowner to maintain ownership and use of the land, subject to negotiated and monitored easement provisions that limit further development. A third party, such as a local or statewide land trust, typically holds the easement. (See *Chapter 8, Conservation Easements.*)

Showcasing Forest Stewardship

Communities, in association with county foresters, local conservation commissions, forest stewardship organizations, and interested landowners, can showcase examples of excellent forest stewardship as a way to encourage sustainable forest management practices on privately owned land. By showcasing stewardship projects, communities can highlight sustainable practices for harvesting timber, improving wildlife habitat, protecting water quality, and maintaining forest health. Local groups can also highlight properties that have been conserved through a land trust to demonstrate how conservation easements work. Organizations such as Audubon Vermont, Vermont Family Forests, the Vermont Woodlands Association and Vermont Coverts: Woodlands for Wildlife offer a variety of educational opportunities that promote forestland stewardship. (See *Resources* section.)

Third Party Certification

Third party certification involves an independent audit of forest management practices and certification that forestland is being managed in a sustainable fashion. Once certified, landowners can gain access to markets for sustainably produced wood products. Certification programs are available through the Forest Stewardship Council, Vermont Family Forests, Sustainable Forestry Initiative and the Vermont Tree Farm Program administered through the Vermont Woodlands Association. These programs vary in their cost and approach to forest management and environmental protection so landowners should research which program is the best fit for their goals.

Markets are still emerging for certified products. Communities can promote the local use of certified wood products under municipal procurement policies and "buy local" campaigns. The benefits realized from forest certification are also expected to grow in relation to the role that managed forests play in carbon sequestration, especially with the development of carbon offset markets to deal with climate change.

Landowner Cooperatives

Communities can encourage and help organize landowner cooperatives that share in the costs of managing land

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in order to foster conservation and stewardship, as well as market forest products. Landowners who coordinate activities through a cooperative or association can apply for federal or state assistance, share in road and timber management improvements, develop comprehensive wildlife habitat conservation and forest management plans, and seek conservation easements or third party certification for sustainable forest management if desired. Existing forest landowner cooperatives such as Vermont Family Forests and the Orange County Headwaters Project serve as good models in the state.

Buy Local: Promote Local Forest Products

The forest products industry is an important part of Vermont's economy. Sawmills, wood or lumber processing, and local manufacturing using local forest resources are important ways to keep forestland productive. Communities can provide information about locally grown and manufactured wood products, and encourage local government, residents and businesses to buy and use lumber, flooring, firewood, furniture and other forest products produced in the state. Much like the local foods movement in Vermont, communities that support local wood products and manufacturing also support the state's rural economy and its forest resources.

Jake Brown/VNRC

Estate Planning: Promote Long-Term Forest Ownership

Parcelization and forest fragmentation are currently occurring in Vermont due to multiple factors, one of which is a lack of estate planning that provides for the transfer of forestland ownership within families, from one generation to the next. Family held forests account for a large percentage of Vermont's timberland, and the average age of a Vermont forest landowner is over 65.[5]

Detailed guidance on estate planning for family forests is available through the USDA Forest Service and VNRC Landowner Summit webpage at: www.vnrc.org/landownersummit.

Municipalities can encourage landowners to engage in estate planning so that forestland can be maintained over multiple generations, thus reducing the future threat of subdivision due to a death in the family, an unforeseen illness, or other events. Conservation commissions can conduct workshops for landowners with estate planning professionals.

Things to Consider

Work with resource professionals. Communities should encourage landowners to work with forest resource professionals, including county foresters, consulting foresters and ecologists, forest conservation organizations, and government agencies to promote sound forest management. There are many resources available to assist local landowners. (See *Resources* section.)

Find funding for sound forest management. Federal agencies and programs, such as those of the USDA's Natural Resource Conservation Service, can assist with funding to develop forest management plans and improve forest resource management. (See *Chapter 10, Federal and State Assistance Programs.*)

Case Study

Orange County Headwaters Project

The Orange County Headwaters Project (OCHP) was established in 2003 by a group of landowners in Washington and Corinth who were interested in permanently conserving their land through the use of conservation easements. The group has since formed a nonprofit organization with the following goals:

- Provide information, assistance, and leverage to landowners who are interested in conserving their land.
- Support sustainable forestry, watershed protection, and other conservation goals.
- Encourage civic engagement through a better understanding of land stewardship and ecology.
- Demonstrate the benefits of working collaboratively to accomplish landscape-level conservation.
- Document and evaluate the project to assist other communities with similar goals.

Since the OCHP began, 34 parcels of land have been conserved, totaling over 5,800 acres. This relatively small community-based project has gained momentum and capabilities beyond its original scope by forming partnerships with established conservation organizations, including the Vermont Land Trust, the Upper Valley Land Trust, and The Nature Conservancy. This combination of local commitment and collaborative conservation work may provide a new model for use by other communities. Source: http://www.orangecountyheadwaters.org/

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6. Current Use – Vermont's Use Value Appraisal Program

Overview

Vermont's Use Value Appraisal (UVA) Program, commonly referred to as "Current Use," provides an incentive for private landowners to keep forestland (and farmland) productive and undeveloped. To qualify, parcels must contain a minimum of 25 acres of forestland (the minimum acreage for land enrolled under the agricultural lands program is lower). The program, which assesses land at its use value for forest management instead of its higher "development value," reduces the amount that a landowner must pay in property taxes. This makes it easier for landowners to keep their property intact and productive.

In exchange for a lower tax assessment, landowners who enroll in the program are required to manage their forestland under a forest management plan approved by the county forester, and to keep their land undeveloped while it is enrolled. The land can be taken out of the program, but the owner must then pay a land use change tax.

The Current Use Program has been widely credited with helping to keep Vermont's working lands viable and intact. Approximately 1.5 million acres of forestland is enrolled in the program. Generally, when forestland is enrolled in Current Use, the majority of it must further the goals of timber management in accordance with an approved 10-year forest management plan. Additional provisions include:

- **Forestland with non-productive soils:** Land with non-productive soils for growing wood may be enrolled as "Site IV" land. There is no limitation on the amount of Site IV land that can be enrolled, but timber management must be practiced on at least 20 acres.
- **Ecologically Significant Treatment Area:** Landowners with significant ecological sites (old forests, natural communities, rare, threatened and endangered species, riparian areas, forested wetlands and vernal pools) may manage for protection of these sites if they qualify as "Ecologically Significant Treatment Areas (ESTAs)." These do not need to be managed for timber; however, ESTA acres are limited and must be within managed forest areas.

A. Blake Gardner

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- **Conserved land:** Qualifying nonprofit organizations principally engaged in the preservation of forest, agricultural and other undeveloped land may also enroll land in the Current Use Program if they have approved conservation management plans.

More Information on the Current Use Program

- **Current Use Taxation in the Community Planning Toolbox:** http://vnrc.org/resources/community-planning-toolbox/tools/current-use-taxation/
- **Use Value Appraisal of Forest Land in Vermont:** This brochure covers all of the basics, from program eligibility to developing a Forest Management Plan. http://www.vtfpr.org/resource/documents/UVA/FPR%20Information%20Brochure.pdf
- **Use Value Appraisal Program Manual (2010)**: This manual describes the "Minimum Standards for Forest Management and Regeneration" and "Minimum Standards for Forest Management Plans." http://www.vtfpr.org/resource/documents/UVAManual.pdf

If you want to talk to a local expert on the Current Use Program, get in touch with your county forester. http://www.vtfpr.org/resource/for_forres_countfor.cfm

Statutory Authority

32 V.S.A. Chapter 124

Vermont's Current Use Program was enacted in 1978 for the following purposes:

- To encourage and assist the maintenance of Vermont's productive agricultural and forest land;
- To encourage and assist in their conservation and preservation for future productive use and for the protection of natural ecological systems;
- To prevent the accelerated conversion of these lands to more intensive use by the pressure of property taxation at values incompatible with the productive capacity of the land;
- To achieve more equitable taxation for undeveloped lands; to encourage and assist in the preservation and enhancement of Vermont's scenic natural resources; and
- To enable the citizens of Vermont to plan its orderly growth in the face of increasing development pressures in the interests of the public health, safety and welfare (32 V.S.A. §3751).

Implementation

Municipal Plan

Landowners decide whether to enroll their property in the Current Use Program; however, municipalities can encourage program enrollment and awareness. For example, the municipal plan can provide background about the program and talk about the benefits of enrollment to both the landowner and the community. The municipal plan can also highlight the percentage of municipal land that is enrolled in the program, and set targets for additional enrollment, especially in rural or conservation oriented zoning districts.

Regulations

Zoning regulations can reinforce the Current Use Program in two ways:

First, the location of parcels enrolled in Current Use can guide communities that are working to delineate forest or conservation district boundaries. (See *Chapters 12-14, Conservation Zoning Districts, Forest Zoning Districts,* and *Overlay Districts.*) Areas with a large number of contiguous parcels or acres enrolled in Current Use may be suitable as a forest or conservation district. The inclusion of existing Current Use parcels in a forest or conservation district would likely be consistent with landowner intent for those parcels, therefore furthering both landowner and municipal goals.

Second, zoning and subdivision regulations can support the maintenance of lot sizes that are large enough to enroll in current use. In forest districts that exclude housing development, regulations that require a 25 acre minimum lot size can ensure that parcels are eligible for program enrollment. For zoning districts that allow residential development, a minimum lot size of 27 acres is more

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A. Blake Gardner

appropriate, since this is the minimum lot size for a parcel with a dwelling to be eligible for the Current Use Program.

There can be drawbacks, however, if regulations allow large, forested parcels (e.g. many hundred acres) to be subdivided into many 25+ acre lots, thereby resulting in an undesirable level of fragmentation. In order to reduce fragmentation where existing lots are much larger, it may be more desirable through local regulations to define a maximum development density, rather than a minimum lot size that promotes the retention of large forested lots. For example, if a 200 acre lot is being subdivided at an allowed density of 25 acres per dwelling, the regulations could promote the retention of one very large conserved forest lot for enrollment in current use while creating eight smaller, clustered residential lots for new housing. Separate dimensional, access, and siting standards could then be specified for the residential lots. (See *Chapter 16, Clustering and Planned Unit Development.*)

Things to Consider

Remember that there is no cost to towns. The state reimburses towns for revenue they forgo as a result of land that is enrolled in the Current Use Program. Therefore, municipal tax rates are not affected by the amount of land that is enrolled in the program.

Don't forget that enrolled land cannot be developed. The state attaches a lien to property enrolled in the program. This ensures that the state can collect the Land Use Change Tax if the land is developed. "Development" includes subdivisions resulting in parcels less than 25 acres, and cutting timber contrary to the approved forest management plan or minimum silvicultural standards. Since a landowner can withdraw land from the program and develop it, conservation easements are a better tool for ensuring permanent conservation. Many landowners who have conservation easements also enroll in the Current Use Program to receive a lower tax assessment.

Consider a local tax stabilization program as a viable alternative. Some landowners are reluctant to enter into the Current Use Program because the state holds a lien on their property to enforce against conversion or mismanagement of forestland. For landowners who would rather enter into a local program administered by their own town, tax stabilization contracts offer another option. (See *Chapter 7, Local Tax Stabilization for Forestland and Open Space.*)

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7. Local Tax Stabilization for Forestland and Open Space

Overview


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Reducing the tax burden on forestland owners can help them keep that land in production and remain financially viable. The alternative – which many landowners face – is selling their land for development in order to make ends meet. Municipalities have the authority to enter into tax stabilization contracts with owners, lessees or operators of existing or new forest, agricultural, or open lands in order to promote forestry and open space preservation. These contracts can be written to stabilize taxes in a variety of ways: by fixing property values, tax rates, or the amount or percentage of annual tax assessed.

The 2008 Vermont Municipal Information Report by the Vermont League of Cities & Towns notes that of the 208 towns surveyed, 33 have created tax stabilization contracts, and 11 of these are for land in agriculture and forestry. Two of the 33 towns have tax stabilization programs to promote open space protection; both of these towns also have agreements for agriculture and forestry.[1]

Statutory Authority and Implementation

24 V.S.A. §2741 and 32 V.S.A. §3846

According to the Supreme Court of Vermont, the legislative scheme regarding municipal tax stabilization plans gives towns considerable discretion. Beyond specific requirements described in statute, towns are free to adopt any rules and requirements that, in their judgment, further the policies of their municipal plans.

There are two ways for municipalities to enter into tax stabilization contracts.

Title 32 V.S.A. §3606 provides guidance on assessing the value of working forestland, so that property is not assessed at a higher value once the timber on it is under contract for sale. The statute reads: "The sale or conveyance of standing timber shall not affect the valuation of the underlying land."

Voter Approval Option (24 V.S.A. §2741)

Under this option, voters provide the legislative body (e.g., Selectboard) with either (a) general authority to enter into tax stabilization agreements or (b) limited authority to negotiate contracts. If granted limited authority, the contract negotiated by the legislative board becomes effective only after it is approved by the majority of voters present and voting at an annual or special meeting warned for that purpose.

Under this "voter approval" option, contracts cannot exceed a period of 10 years. Contracts may be applied to existing or to newly established agricultural, forested, or open space properties. In addition – and in contrast to the state's Current Use Program – there are no requirements for the size of the parcel being enrolled, giving a municipality the flexibility to enroll, for example, a 10 acre farm or woodlot parcel.


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Under the voter approval option, "forest land," "farmland," and "open space land" have specific definitions. "Forest land" is defined as "any land, exclusive of any housesite, which is under active forest management for the purpose of growing and harvesting repeated forest crops."[2] ("Housesite" is defined as "two acres of land surrounding any house, mobile home, or dwelling."[3]) "Farmland" is "real estate, exclusive of any housesite, which is actively and exclusively devoted to farming and is operated or leased as a farm enterprise by the owner."[4] In addition, "open space land" is defined as "any land, exclusive of any housesite, that does not fall under the definition of 'farmland' and 'forest land,' is not used for commercial or industrial purposes, and does not have structures thereon."[5]

This section of the statute predates the state's Current Use Program. While the availability of current use may have decreased interest in local tax stabilization, some communities may prefer this as a way keep the program under local control. It also allows for the enrollment of parcels smaller than the minimum 25 acres required by the Current Use Program, which may help a community meet its goals more effectively.

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Selectboard Option (32 V.S.A. §3846)

In this option, the legislative body of a municipality can negotiate contracts without voter approval, but there are greater limitations related to parcel size and ownership on the kind of land that can qualify.

Forestland must be at least 25 acres in size and under active forest management for the purpose of growing and harvesting repeated forest crops. In addition, in order to qualify for enrollment, the beneficiary of the contract must be an owner of forestland. Being an owner means being the record holder of the legal title or a leasehold interest in the forestland. Furthermore, in the event an owner breaches the contract by converting the forestland to another use, the owner must pay back the tax savings from the previous three years.

Ron Powers

Things to Consider

Cost to towns: The municipality and its property taxpayers bear the burden of any tax loss resulting from local tax stabilization. By contrast, under the Current Use Program, municipalities are reimbursed for lost municipal taxes. It is important to note that in many cases, conserved land requires fewer services than developed land, and municipalities therefore benefit by having land conserved, which can help to offset reductions in tax revenue from tax stabilization agreements.

Tax stabilization and the education property tax: One consideration with any program related to taxation is Vermont's state education property tax. Title 32 V.S.A. §5404(a) explains how local tax stabilization programs relate to the state education property tax. In a nutshell, land with tax stabilization agreements in place before July 1, 1997 *reduces* the municipality's overall education property tax liability. However, tax stabilization agreements entered into after July 1, 1997, do *not* reduce the municipality's education property tax liability. Instead, the land is assessed at fair market value, and municipalities must make up the difference in what they owe to the state education fund, usually with an add-on to the typical municipal rate, which is then clearly identified on the tax bill. Depending on the agreement between the municipality and the landowner, this may lead to a reduction in the education property tax liability of the owner.

Tax stabilization agreements may help landowners that are reluctant to conserve land through other options: Some landowners are reluctant to enter into the Current Use Program because the state holds a lien on their property to enforce against conversion or mismanagement of forestland. For landowners who would rather enter into a local program administered by their own town, tax stabilization contracts offer another option. Local tax stabilization agreements may also be used to complement enrollment in the state's Current Use Program.

Flexibility: As mentioned above, municipalities have wide latitude to incorporate additional terms that are rationally related to furthering the objectives of their tax stabilization programs. In the case of contracts that are voter approved, there is no minimum acreage requirement. Therefore, there may be important forestland parcels that have high public values that can be conserved through tax stabilization contracts, but would not qualify for enrollment in Vermont's Current Use Program due to the 25 acre threshold requirement.

Wayne Fawbush

NON-REGULATORY

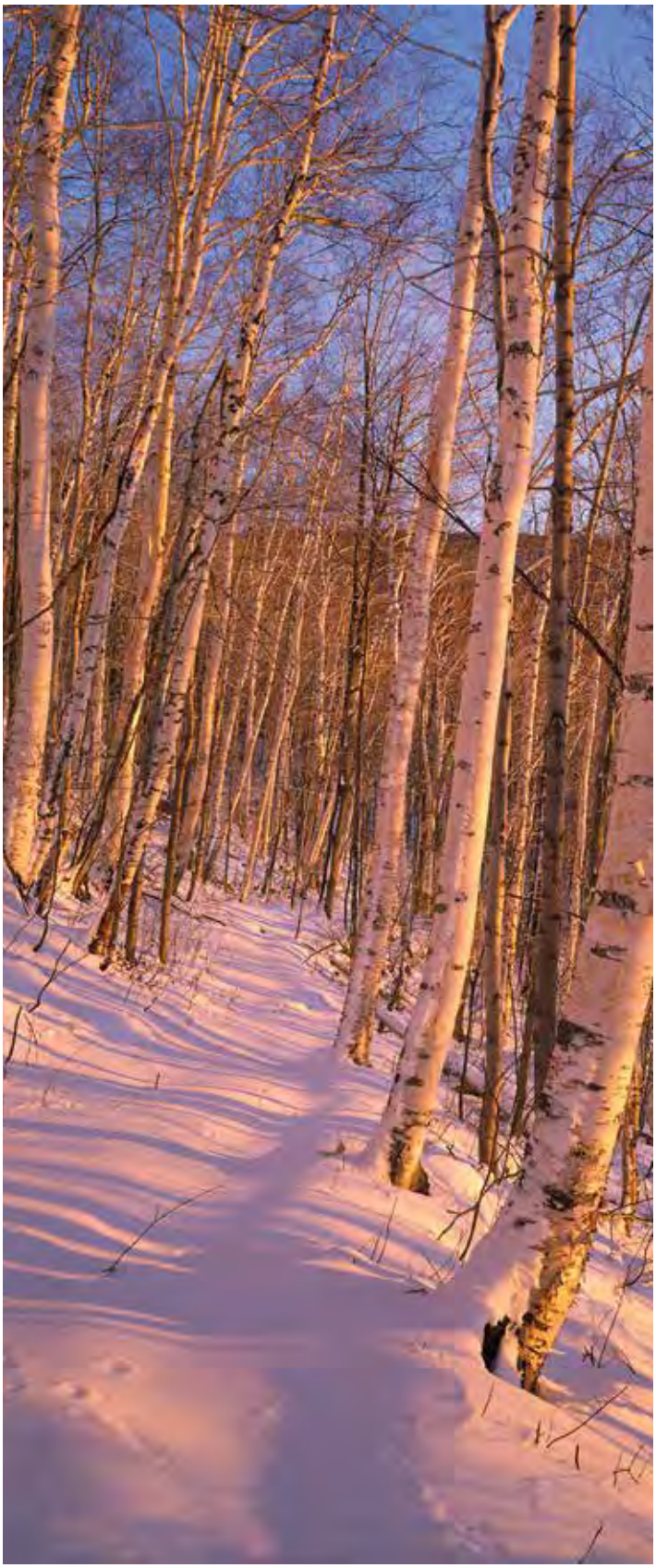
Case Study

Farm and Open Land Tax Stabilization Program: Essex, Vermont

The Town of Essex recognizes the value of forest and farmlands, which is why they chose to create the Farm and Open Land Tax Stabilization Program by town vote in 1975. The program reduces the property tax burden on qualifying landowners by 50%, which helps them keep their lands in production and avoid what can oftentimes be a more financially attractive option: development.

Owners of open lands (including forestland) are eligible to enroll in the program if they have 50 acres or more of undeveloped land. If a residence exists on the parcel, then two acres are automatically deducted from the total acreage that is considered to be eligible. Unlike open lands, farmland does not have to meet a minimum acreage standard. Rather, owners can enroll if they derive at least 50% of their income from farming.[6]

Today, the program is administered through the town assessor and the Essex selectboard has the ability to enter into tax stabilization contracts without voter approval. As of June 2013, the Town of Essex had contracts with nine owners of open lands and three owners of farmlands. Landowners must reapply to the program every five years.[7]



A. Blake Gardner

NON-REGULATORY

8. Conservation Easements

Overview

A conservation easement is a voluntary agreement between a landowner and a land trust or government agency that limits the type or amount of development on one or more parcels of land. (For simplicity, "land trust" will be the term used in this document.)

The easement is drafted specifically for the property in question, and identifies both the restrictions placed on the conserved property as well as the activities that are allowed. Landowners continue to own, manage, and pay taxes on the land and can sell their land; however, the conservation easement permanently remains on the property (a temporary easement, that expires after a fixed number of years, is also an option but this approach is very uncommon in Vermont).

Conservation easements have successfully protected hundreds of thousands of acres of productive forestland in Vermont and millions of acres of open space in the United States. They can minimize (and even permanently halt) the subdivision and fragmentation of forestland and enhance the quality of life for landowners and adjoining property owners. Furthermore, because of the flexibility in drafting a conservation easement, specific conservation values – from forestry to wildlands protection – can be targeted as ultimate goals of the easement. While the provisions of an easement provide guidance on how the land should be managed, supplemental management or stewardship plans may also instruct how the land is managed.

There are tax and estate planning benefits that could make conservation easements an attractive option. These benefits can include a reduction in estate tax liability, a charitable income tax deduction, and for some property owners, a reduction in property tax liability.

Common characteristics of a conservation easement include:

- **Protecting land for future generations.** Specifically, easements can help protect and preserve working or wild forests, farms, wildlife habitat, riparian buffers, recreational access, and a variety of other beneficial uses.
- **The landowner typically retains ownership of the property,** but by recording the easement in the town's land records and through periodic review, the easement holder ensures that a property has not been subdivided or developed except as provided in the easement, and that the property is being managed in accordance with the terms of the easement.
- **The landowner will usually be allowed, and is often encouraged, to use the land for farming, forestry, recreation, or education purposes**, as provided by the terms of the easement.
- **Clear parameters of the agreement.** This process of creating the document provides a level of flexibility and specificity that other strategies might lack, and ensures that the landowner's goals are met.
- **The current owner retains most property rights.** Again, these rights are defined by the easement itself, but may include agriculture, woodland management and sugaring operations, construction of barns and farm structures, recreation trails, the construction of seasonal camps, and if specified in the easement itself or management plan, the potential to allow a predetermined number of subdivided lots.

Implementation

For the landowner interested in granting a conservation easement on their property, there are several steps to take.

Plan to conserve. The landowners should determine what personal goals they, along with their families or others with interest in the land, seek to accomplish with a conservation easement. Landowners should try and envision what the property will look like in 20, 30, even 100 years.

Vermont Land Trust

Another relevant question is how the landowner views their relationship with the land: *as a legacy, a priceless family heirloom, or strictly as an asset?* Along with these concerns are more straightforward questions: *Do you care if your land is developed? Is it important that the land remain in your family? Do you want the land to remain intact regardless of who owns it?* Answering these questions will help to clarify the vision for the future, and the goals that must be met by the conservation easement. Because of land ownership and inheritance plans, this is often a family or group decision, which means that understanding everyone's expectations and vision for the property is a critical first step.

Gather information about the land. The landowner should gather all relevant facts about the land, its management, and other assets that the landowner holds.

Find and assemble your professional team. An appraiser, a certified public accountant, financial planner, estate-planning attorney, and land trust professional may be of assistance in order to achieve a landowner's goals of preserving the property into the future.

Appraise the land. In order to realize the tax benefits of a conservation easement, a landowner must have a qualified appraiser appraise the value of the property as a whole, as well as the value of the easement itself. A qualified appraiser is a state licensed professional who provides an objective analysis of the value of real property. Appraisers assemble a series of facts, statistics, and other information regarding specific properties, analyze this data, and then develop opinions about the land's value. To receive a tax deduction, a summary of this appraisal must be submitted with the donor's income tax return for the year of the gift. This appraisal is needed if a landowner is seeking a reduction of estate tax liability. (Please note that sometimes the appraisal that is completed to determine the value of the purchase of the easement may not be adequate for IRS purposes, and an additional appraisal or update of the original appraisal may be necessary.)

Work with a land trust or another qualified organization. Generally, a land trust will accept a voluntary conservation easement by donation if the property meets the land trust's criteria. In some circumstances, a land trust may purchase the conservation easement for a fee. The easement is drafted with the help of several professionals, and once completed, the easement document will be recorded in the town's land records. Essentially, once recorded, the easement is permanently attached to the deed of the property, and any potential buyer of the property that performs a basic title search will see the easement.

The easement holder or land trust will perform both education and monitoring functions. They will draft a baseline report, which includes a description of the property and resources and an assessment of the state of the property when the easement is granted. The easement holder also conducts monitoring by making regular – typically yearly – visits to survey the property. These monitoring visits provide an optimal time for the current landowner to discuss any future changes they wish to make on the property with the land trust.

Things to Consider

What happens when the current landowner sells the land or passes it on to heirs? A properly drafted and executed conservation easement remains in force even after the land changes hands. Easements are recorded in the local land records and are binding on both present and future owners. However, it is up to the easement holder to ensure that the terms of the easement are being enforced. Often, to ensure continued stewardship of the land, land trust staff will reach out to landowners, particularly when there is a management plan in place.

How long will a conservation easement last? If drafted and recorded correctly, a conservation easement can be enforced in perpetuity. In order to ensure that this happens, the easement must be properly drafted and recorded in the town land records where the land is located, and the easement-holding organization must be organized such that it can enforce the easement in the future.

How can I decide which entity should receive my conservation easement? Landowners should look for the following characteristics: First, the land trust must be a qualified 501(c)(3) organization or a public agency. Second, the organization must be a good fit with the land values and goals of the property owner. Third, the landowner should research whether the land trust has the means and resources to continue its operation and whether a contingency policy exists for future oversight should the land trust cease to exist.

In the past few years, the Land Trust Alliance has created accredited status to land trusts across the country after a rigorous due diligence process. This accreditation conveys to landowners and supporters the strength and effectiveness of the land trust organization. Many land trusts have become accredited and others are considering when it would be most appropriate for their organization to apply for accreditation and must balance accreditation with their other program activities. Land Trust Alliance Accreditation can offer extra assurance of the quality and permanence of a land conservation organization.

What are the costs of establishing a conservation easement? The process of assembling attorneys, financial planners, and accountants can be time consuming and expensive. Appraisals and closing costs can also be expensive. Generally a land trust expects the landowner to cover some or all of the costs of conservation, including funds to offset the costs associated with ongoing stewardship of the easement. Some organizations can subsidize a portion of the costs associated with the project and future stewardship of the land.

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This may occur on a sliding scale based on a landowner's ability to pay or on regional support from donors. It is important to understand the costs and how they may be shared up front.

The donation of an easement may result in a charitable deduction for income tax purposes, as well as the reduction of estate tax liability and potentially property tax liability. Furthermore, if the parcel is deemed essential and meets certain criteria, a conservation easement can be purchased by a land trust, public agency or local open space program.

Does a landowner who grants a conservation easement on their property have to allow public access to their land? Although owners of conserved land must allow the staff of the land trust onto their property to perform regular monitoring visits, the landowner generally decides whether or not to include a public access provision in their easement document for the general public. An exception to this may be when easements are purchased with certain public funds, such as the Forest Legacy Program (see *Chapter 10, Federal and State Assistance Programs*). In those cases, purchases may be contingent upon allowing public access. In addition, conservation easements acquired by the Vermont Agency of Natural Resources generally must provide for dispersed, pedestrian public access.

How do conservation easements affect the taxable value of land? Although a conservation easement can reduce the value of a property by restricting development rights, conservation easements do not always result in lower property tax bills. Local listers (tax assessors) are required to consider easements when assessing property, but local listers may not adjust the assessment to reflect restricted value if they have evidence that supports fair market valuation even with the easement on the property. For example, farm land often sells for the same amount whether development is restricted or not, since the demand for cropland is high. High value estates may also command high prices regardless of whether there is an easement on the property. In Vermont, landowners can appeal assessment values if they believe conservation restrictions have not been factored into the value of their property.

Wayne Fawbush

LANDOWNER CASE STUDIES

Putnam Blodgett

The Land:

670 acres of woodlands in Bradford, VT.

Courtesy Put Blodgett

Put Blodgett and his family have a long-standing relationship with their land. Put bought the land that he grew up on from his parents in 1953. After several years operating it as dairy farm, the meadowland was sold and Put started a summer camp, spending long hours canoeing and hiking through the woods. Put enrolled his land in the Current Use Program in 1980, which enabled him to resist the fiscal pressure associated with owning land in Vermont and allowed him to hold on to it.

In the mid '90s, as Put considered his land to be his lifetime's work, he decided to donate a conservation easement to the Upper Valley Land Trust. He chose the Upper Valley Land Trust because of his close connections with the organization and he felt in agreement with its stated purpose. This easement ensures that Put could keep using his land for forestry, in compliance with his forest management plan, while restricting further subdivisions.

Put also started thinking about what would become of his land after he passed away. His priority was to be fair to his four children, while making sure that the land would be held by one of his children only. In order to share his assets equally among his children, Put placed all of his assets into a living trust and drafted a will that specified how assets would be distributed. Put's youngest son recently cleared a site and built his home on the Bradford Tree Farm. The property has been transferred from the Trust to Blodgett Forests, LLC, a Limited Liability Company. Put is satisfied with his estate planning as he is confident that the structure he set up will prevent chaos and probate court hold-ups.

Actions:

- Enrollment in the Current Use Program, which allows the family to keep the land and keep it managed as a working landscape;
- Donation of a conservation easement to the Upper Valley Land Trust to ensure the land would be safe from subdivisions and kept as forestland;
- Drafting of a will and setting up a living trust to own assets including the land, the trust being set up with specific directions to have the land transferred to the one son interested in owning it.

Alan Calfee

The Land:

123 acres of predominantly forested land including four separate lots, three of them with single family residences in Dorset, VT.

In 1949, Gertrude Davis bought the land that was going to be the anchor of her family's life for the next 60 years. As time went by, she wanted her sons, Alan Calfee and his two brothers, to get involved in the maintenance of the land and eventually to take over the land ownership. When in 1989 she consulted her attorney, she realized that the increase in her property value was going to make the tax burden of her passing too great for her children to bear and that the land would have to be sold. The transfer of Gertrude's assets was going to require some planning.

The family engaged in open discussions as to what to do with their land and determined common goals, the main one being to protect their land from development and fragmentation. As a result, in 1998, Gertrude donated a conservation easement over the forested part of her land (100 acres) to the New England Forestry Foundation. Although several other land trusts had been consulted, the NEFF was the one that fit best the criteria that the family had for their land.

Once the conservation easement was established, the family set up a limited partnership to own the land, Elephant Hill Family Limited Partnership and Gertrude

Courtesy Alan Calfee

LANDOWNER CASE STUDIES

progressively transferred her interests in the land to her sons through the partnership. Alan is now the general partner and takes care of daily management of the property. He is grateful for his mother's early planning.

Actions:

- Enrollment in the Current Use Program;
- Focused family discussions on succession and conservation of the land;
- Donation of a conservation easement to the New England Forestry Foundation;
- With valuable input from expert team of foresters, surveyors, accountants and attorneys with experience in land and estate planning, creation of a limited partnership whose partners are family members, to collectively own and maintain the land;
- Annual gifts of interests in the land to each partner of the limited partnership.

Bob and Sue Lloyd

The Land:

1,100 acres of forestland and open fields and 200 acres of farm land sold to farmers and currently operated as an organic dairy farm in Tinmouth, VT.

A. Blake Gardner

In 1963, Bob and his wife Sue together with their college roommates and their spouses decided to purchase 450 acres of forested land and open fields in Tinmouth. The group used the land exclusively for recreation until 1969, when Bob and Sue built a cabin and started spending their summers there with their three sons. A neighboring farmer ran a thirty-head, free-range beef herd that kept the fields open.

In 1975, the neighbors' 850-acre farm was forced onto the market by a family dispute. Bob and Sue purchased it, promising their neighbors that they would do their best to keep the land farmed. Sue, Bob and their friends decided to take action to avoid any dispute that could lead to land fragmentation, so they created a land structure that would forever protect the integrity of their land. This is why in 1980 they donated a conservation easement on the whole land to the then Ottauquechee Regional Land Trust (now Vermont Land Trust) and to the Vermont Department of Forests, Parks & Recreation, thus restricting subdivisions and commercial uses of the land, while allowing forestry and agricultural uses. Bob also found new tenants to farm 200 acres of his former neighbors' property, who would go on to buy the land.

Bob, Sue and their co-owners also decided to establish a condominium where each owner would own a ten-acre lot in fee simple and an undivided interest in the property held in common allowing each owner to sell their share without dividing the property. Since then, a new share has been added, but the decision making process remains fairly simple as the owners meet once a year to discuss land related issues. Although the rule is one share, one vote, they have always managed to come to a consensus without having to vote.

Simultaneously, the land was enrolled in the Current Use Program and subject to a management plan. Profits from logging are sometimes shared within the owners and sometimes reinvested in the land.

Actions:

- Purchase of land together with several families (tenancy in common);
- Donation of a conservation easement;
- Sale of some of the protected land to farmers ensuring perpetual protection of the land while preserving a working landscape;
- Establishment of a condominium, allowing sale of shares and common use of the land while avoiding its subdivision;
- Enrollment in the Current Use Program alleviating the tax burden and allowing the owners to keep the land undeveloped. Some areas enrolled in the Current Use Program are designated as Ecologically Sensitive Treatment Areas.

LANDOWNER CASE STUDIES

Allan Thompson and Kathleen O'Dell

The Land:

30 acres of forested land, including a pond, house and yard in Waterbury, VT.

When Kathleen O'Dell learned of her terminal illness, she decided to plan for the transfer of her assets to her three sons: Allan Thompson and his two brothers, at the time in their early twenties. Kathleen owned the family house and land in Waterbury and decided to organize the transfer of her assets to her sons through the establishment of a living trust and a will. She got in touch with her family lawyer Jeff Kilgore, and had the necessary legal documents drafted. This required extensive work and precise identification and classification of her assets, a task with which her lawyer was very helpful.

Courtesy Allan Thompson

As Kathleen knew she was going to die while her children were still young, the trust was designed to have a predictable distribution of assets through time: one third would be distributed on the year of Kathleen's passing, one third five years later, and the final third 10 years later. Upon her death in 2005, Allan and his two brothers became the beneficiaries of the trust. In 2010, it became apparent that out of the three brothers, Allan was the only one who was really spending time on the property, yet the fiscal burden of the property was shared equally among him and his brothers. When Allan showed interest in taking over the land and the house, the three brothers met and talked about the best way to go about it. After lengthy discussions where all three brothers worked hard at communicating their intent for the land the best they could, they unanimously decided that Allan would be written out of the trust and would buy his two brothers out at a reduced price. They also decided to draft use restrictions within the deed itself; (i) the land could not be subdivided and (ii) the land could not be sold to a third party, but only back to the trust. The land and the house are now co-owned by Allan and his partner.

Actions:

- Drawing of a will;
- Setting up a living trust with specific timeline restriction to organize progressive asset transfer to heirs;
- Enrollment in the Current Use Program and forest management plan alleviating the tax burden and allowing the owners to keep the land undeveloped;
- Land purchase at a reduced price from family members;
- Family agreement to include restrictions in the deed to limit subdivisions and land sale to third parties.

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9. Conservation Funds and Town Forests

Municipalities have many opportunities to promote forest and habitat conservation through public policies and programs. Creating conservation funds and town forests are two options to that are available to help municipalities.

Conservation Funds

In the past decade, nearly 50 Vermont communities have helped fund the permanent conservation of one or more parcels of land. Most of these towns did so by creating a conservation fund: a dedicated pot of money that can be used for conservation projects.

Funds for conservation can be raised in response to an immediate opportunity — buying development rights on a prominent local mountain, for example — or they can be put into a reserve fund so that money is available when opportunities arise in the future. A reserve fund, adopted in accordance with 24 V.S.A. §2804, serves as a "savings account" that can be carried forward into future fiscal years. Reserve funds are a useful companion to a capital budget and program (24 V.S.A. §4443) for implementing the town's vision. Through the capital budget and program, a municipality can integrate land conservation into the annual budgeting process and coordinate expenditures for land conservation with other capital expenses, such as road improvements and equipment purchases.

The most common method of raising money for a conservation fund is through a direct appropriation at Town Meeting (e.g., $25,000), although some communities have successfully tied their annual appropriation for land conservation to a specific increase in the tax rate (e.g., $0.02 on the tax rate, with the proceeds going to conservation).

Municipal land conservation dollars are often multiplied, since local funds typically leverage additional funds from state or federal sources, such as the Vermont Housing & Conservation Fund and the Forest Legacy Program. (See *Chapter 10, Federal and State Assistance Programs.*)

Most local conservation projects are undertaken in partnership with a land trust or other conservation organization, which enables the land trust to take on stewardship responsibilities for the life of the easement. Most conservation easements in Vermont are perpetual, so stewardship is an important consideration – as well as a common requirement of state and federal funders.

Tim Newcomb

While municipalities can purchase lands for conservation — which is common, especially for larger forested parcels — they can also work with a private landowner and land trust to develop a conservation easement. In this instance, the landowner would retain ownership of the parcel, while managing the lands according to the terms of the easement.

Town Forests

"Town forests" have been a part of Vermont's landscape for much of the last century. In the early 1900s, municipalities created town forests to protect water supplies and grow timber.

Since their establishment, town forests have grown to provide diverse services including recreation opportunities, affordable firewood for town residents, a source of timber for municipal construction projects, municipal revenues through logging operations (that can be reinvested in land conservation). They can also serve as demonstration sites for local residents to learn about sustainable forest management, and town forests help to maintain blocks of habitat for diverse wildlife species.

Today, there are at least 121 municipal forests in Vermont with approximately 120,000 acres, although this number is potentially greater due to recent acquisitions.[1] To learn more about this topic, including how to create a town forest and management plan, go to: http://www.communitiescommittee.org/pdfs/TownForestStewardshipGuide.pdf.

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10. Federal and State Assistance Programs

Overview

Municipalities can promote financial and technical assistance programs that help landowners maintain and manage forestland and associated forest resources such as wildlife habitat, clean water, and soil productivity. Such programs can be highlighted in the town plan, through conservation commission or town-sponsored workshops, by direct outreach to landowners through local newspapers, town websites, or other media. In addition, some of these programs are available to assist local governments. Planning and conservation commissions should make themselves aware of opportunities to secure funding for programs that may be eligible for municipally owned land.

This section focuses on federal and state programs that provide funding and technical assistance for forestland management and conservation. A few key programs, such as Vermont's Current Use Program, are presented in more detail in other sections. (For example, see *Chapter 6, Current Use — Vermont's Use Value Appraisal Program.*)

Federal and state programs, and program funding levels, vary from year to year and may change over time as they come up for reauthorization. Programs that help private landowners and local communities strengthen the long-term viability of forestland generally receive broad-based support, but funding is typically limited and awarded on a competitive basis. Since approximately 86% of Vermont's forestland is in private ownership, it is vitally important for local communities to work with interested landowners to foster participation in these programs.

Federal Programs

Forest Legacy Program

The U.S. Forest Service's Forest Legacy Program (FLP) is a federal grant program, administered through the Vermont Department of Forests, Parks and Recreation, which protects forestland from conversion to non-forest uses. The FLP recognizes that most forestland in the United States is privately held, and that many landowners are facing growing financial pressure to convert their land to other uses. Much of this pressure arises from encroaching residential and commercial development including resort and second home development, as is the case in Vermont.

The state (in its role as a FLP partner) determines, in consultation with regional planning commissions and local communities, those areas (Forest Legacy Areas, or FLA) where the most valuable forestland faces the greatest threats. Once this "assessment of need" is completed and the FLA is federally approved, landowners from towns in the program may then apply to the state for program funding. Vermont's current Forest Legacy Area includes 186 towns, two unorganized towns and one gore, and encompasses nearly 3.3 million acres of land. This includes large forested blocks, productive forest soils, and important fish and wildlife habitat that are under threat of fragmentation, conversion and development. Communities within a proposed legacy area can opt out of the program, leaving landowners in those communities ineligible for the program.

"The Forest Legacy Program helps private landowners protect their forests for future generations while ensuring that their property rights are secure."

— Senator Patrick Leahy, author of the Forest Legacy Program

The Forest Legacy Program is voluntary. Landowners who wish to participate may either sell their property (in fee simple) or, more commonly, sell their rights to develop the land which is then placed under a conservation easement. The use of conservation easements allows the land to remain in private ownership, while ensuring that important public values such as wildlife habitat, natural areas, forest resources, and outdoor recreation opportunities are protected through a third party. The program provides up to 75% of the costs of a conservation easement or fee-simple acquisition. The remaining 25% must be matched either by the landowner or a partnering entity, such as a municipal or other non-federal governmental entity or nonprofit organization. Common partnering organizations in Vermont include the Vermont Land Trust, The Nature Conservancy, the Vermont Housing and Conservation Board, the Trust for Public Land, and The Conservation Fund. In addition, municipalities may use Forest Legacy funds to purchase town forests. In Vermont, Forest Legacy funds have been used to purchase town forests for two towns. Learn more at: http://www.fs.fed.us/spf/coop/programs/loa/flp.shtml.

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Land and Water Conservation Fund

Since its inception in 1965, the federal Land and Water Conservation Fund (LWCF) has been used by over 100 municipalities and the state to create parks and open spaces, protect wilderness and forests, and provide outdoor recreational opportunities. More than 66,000 acres of outdoor recreation lands, including forestland, have been acquired through this program. Administered through the Vermont Department of Forests, Parks and Recreation, the LWCF can be used to reimburse up to 50% of eligible land or easement acquisition costs. The value of real property donated by the landowner may be used as a match. Learn more at: http://www.nps.gov/lwcf/.

Environmental Quality Incentive Program

The Environmental Quality Incentive Program (EQIP), administered through the Vermont offices of the USDA's Natural Resources Conservation Service (NRCS), offers cost sharing programs for working forest and farmland owners. Program assistance is available to write forest management plans, manage stormwater runoff and erosion from forest roads, control invasive plants, and improve wildlife habitat and forest health. Learn more at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/vt/programs/financial/eqip/.

Conservation Technical Assistance

The Conservation Technical Assistance (CTA) program, also administered through Vermont's NRCS offices and conservation districts, provides voluntary technical assistance to individuals, communities, and state government to plan for and implement management practices that conserve natural resources. These include practices to improve woodlands, soil health and water quality, to conserve wetlands and enhance fish and wildlife habitat, and to address other natural resource issues. The CTA program also provides technical assistance to participants in related NRCS cost-share and conservation incentive programs. Learn more at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/vt/technical/cp/cta/.

Wildlife Habitat Incentive Program

The Wildlife Habitat Incentives Program (WHIP) is a voluntary program for landowners who want to develop and improve wildlife habitat primarily on private land. Through WHIP, the NRCS and the Vermont Department of Fish and Wildlife provide technical assistance and up to 75% cost-share assistance to establish and improve fish and wildlife habitat. Forest management activities that meet wildlife habitat program priorities may be eligible for funding; however, access roads and timber stand improvements are not. WHIP agreements between NRCS and a participant generally last from five to ten years from the date an agreement is signed.

Courtesy Vermont Fish & Wildlife Department

Learn more at: http://www.nrcs.usda.gov/wps/portal/nrcs/main/vt/programs/financial/whip/.

Partners for Fish and Wildlife Program

The U.S. Fish and Wildlife Service's Partners for Fish and Wildlife Program (Partners Program) focuses on the restoration of Vermont's wetland, riverine and upland wildlife habitats that benefit federal trust species – including migratory birds, anadromous fish, and federally listed threatened and endangered species. Program biologists work with private landowners, and in partnership with other federal and state agencies, municipalities, and nongovernmental organizations, to protect, enhance and restore wetland, floodplain forest, and in-stream habitat areas. The Partners Program provides technical and permitting assistance, and helps landowners identify available sources of project funding. Learn more at: http://www.fws.gov/lcfwro/reports/Habitat/PFW1.pdf (summary of Vermont program) or http://www.fws.gov/partners/ (federal website).

Community Forest and Open Space Program

The Community Forest Program is a grant program that authorizes the U.S. Forest Service to provide financial assistance to local governments, tribal governments, and qualified nonprofit entities to establish community forests that provide continuing and accessible community benefits. The Community Forest Program was authorized by the 2008 Farm Bill (§8003 of the Food, Conservation, and Energy Act of 2008 (Public Law 110-234)), which amends

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the Cooperative Forestry Assistance Act of 1978. The full title is the "Community Forest and Open Space Conservation Program." The working title is the "Community Forest Program." Learn more at: http://www.fs.fed.us/spf/coop/programs/loa/cfp.shtml.

State Programs

Forest Stewardship Program

Vermont's Forest Stewardship Program is administered through the County Forester Program of the Vermont Department of Forests, Parks and Recreation. County foresters can provide information and assistance to landowners and communities about woodland management and stewardship. They can direct landowners to programs, services and professionals appropriate for their needs for plans and projects. They can help landowners integrate goals from stewardship plans into Current Use plans. (See *Chapter 6, Current Use – Vermont's Use Value Appraisal Program.*) County foresters assist municipalities in the planning, management and assessment of town forests. Learn more at: http://www.vtfpr. org/resource/for_forres_steward.cfm.

Forest Watershed Program

The Vermont Department of Forests, Parks and Recreation's Forest Watershed Program emphasizes the contribution that healthy forests and sustainable forestry practices provide to water quality. This program provides education, outreach and technical assistance to Vermont forest landowners, loggers, and forestry professionals in partnership with professional associations. This program also administers and provides landowner guidance on the state's "Acceptable Management Practices for Maintaining Water Quality on Log Jobs" (AMPs) and Vermont's "Heavy Cut" Law, which requires state review for clear cutting or heavy cutting on 40 or more acres in Vermont. Learn more at: http://www.vtfpr.org/watershed/index.cfm.

Urban and Community Forestry Program

Vermont's Urban and Community Forestry Program, funded in part by a grant from the U.S. Forest Service, is administered through the Vermont Department of Forests, Parks and Recreation. Since its inception in 1991, this program has provided technical and financial assistance to over 150 Vermont communities, and more than $1 million in competitive grants to municipal and volunteer organizations all over the state. The program focuses on urban and community forests, including town forest management, but associated educational and technical assistance programs provide excellent opportunities for community outreach, and may also be useful to private landowners interested in forest stewardship. This program also supports Vermont's local tree wardens. Learn more at: http://www.vtfpr.org/urban/for_urbcomm.cfm.

Vermont Housing and Conservation Board Grants

The Vermont Housing and Conservation Board (VHCB) administers two conservation grant programs – one for projects of statewide significance (as determined with input from the Department of Forests, Parks and Recreation and the state's Natural Heritage Program) and one for locally supported resource conservation projects. Both provide grants, available on a competitive basis as funding allows, for the acquisition of natural areas, endangered and threatened species habitat, public recreation lands (including working forests) and historic properties. No match is required for the state program, though leverage in the form of in-kind services or donated easements are common. Under the Local Conservation Grant Program, up to $150,000 is available for the purchase of recreational lands and natural areas, but applicants must raise at least 33% of the total project cost from other sources. Local projects must also demonstrate municipal support in the form of a letter of endorsement. Working forests are now eligible for VHCB funding in accordance with legislation enacted in 2012 that specifically adds forestland to VHCB conservation program areas. Learn more at: http://www.vhcb.org/index.htm.

Communities Caring for Canopy

This Vermont Department of Forests, Parks and Recreation program offers grants to Vermont communities to help them develop and sustain a community-wide tree program with tree planting, inventory, maintenance, plan development, public outreach, or program development. Learn more at: http://www.vtfpr.org/urban/grants.cfm.

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Things to Consider

Find the right funding. As noted, many state and federal programs require a match of funds or in-kind services. In order to receive funding, projects must meet program-specific match requirements, typically through the involvement of funding partners and/or volunteer organizations. Municipal conservation funds, local fund raisers and donations can also be used to help leverage other sources of project funding.

Who do landowners contact? Each program has a state or federal agency coordinator that can help landowners apply to the program. Towns should provide contact information for these programs at the town office.

What can towns do? At a minimum, local government can promote available programs and provide contact information through the town office, website, or its conservation commission, and when needed, provide local letters of support for conservation projects. Municipalities can also establish and manage their own conservation funds and grant programs to help individual landowners or partnering organizations meet local match requirements for projects that benefit the community. (See *Chapter 9, Conservation Funds and Town Forests.*) Conservation commissions can also sponsor education and training workshops including "walks in the woods," distribute informational materials and toolkits, and work with interested landowners on local conservation projects.

Case Study

Chittenden County Uplands Conservation Project

The Chittenden County Uplands Conservation Project began in 1999 when one concerned citizen gathered together a group of neighbors and community leaders to discuss the future of forestland centered in Jericho, Richmond, and Bolton. With the assistance of private landowners, town commissions, conservation organizations and state agencies, the project has since conserved more than 9,300 acres in the Winooski River Valley between Mount Mansfield State Forest and Camel's Hump State Park.[1]

Many of the parcels in the project area were conserved with the assistance of the Vermont Land Trust, the Nature Conservancy, the Vermont Department of Forests, Parks and Recreation, and Vermont's Senator Patrick Leahy. Funding for several of the conservation easements (including the 1,700 acre Prelco property) was secured through the federal Forest Legacy Program, which has allocated a total of more than $4 million to the project.[2] Other critical funding sources include donations from private individuals, businesses, and foundations, grants from the Vermont Housing and Conservation Board and the Green Mountain Club, local land trusts (such as the Richmond Land Trust and Jericho Underhill Land Trust), and local governments.[3]

Bob Linck/Vermont Land Trust

The project area is being conserved in order to protect significant wildlife habitat (for animals, such as bobcats, moose, and bears), recreational opportunities (for hikers, rock climbers, snowmobilers, and skiers), hunting grounds, and timber resources (for the local forest products economy).

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11. Writing Standards for Development Review

Overview

There are several options for communities to regulate land use and development to maintain large blocks of forest and protect wildlife habitat. Regardless of the regulatory option used – many of which are described in the following chapters – it is important to clearly communicate *how* a development review board or zoning board of adjustment evaluates a community's natural resources during development review. This is typically done with *development review standards:* requirements, found in a zoning bylaw or subdivision regulation, which a proposed development must meet. Whether a proposal is reviewed by a zoning administrator, a planning commission, development review board, or a zoning board of adjustment, standards serve as a kind of checklist to determine if a development proposal is compatible with the community's goals.

Types of Standards and Statuatory Authority

Vermont's land use statute enables municipalities to develop zoning bylaws (24 V.S.A. §4411). Within these bylaws, various types of standards can be incorporated in different places and each type addresses natural resources in a different way. For instance:

- **General standards** are those that apply to most or all development, regardless of the zoning district. Since all development proposals must meet the general standards, addressing natural resources in the general standards ensures that a basic level of natural resource protection is met.
- **District standards** differ by zoning district. For example, a forest district that includes lands that are higher than 1,500 feet above sea level might have a different standard than a rural residential district for reviewing forest resources.
- **Use standards** apply to particular uses (for example, seasonal camps, ski areas, or gravel pits) regardless of the zoning district where they occur. Use standards recognize that different uses have potential impacts on natural resources.

Standards are also used in various review processes:

- **Site plan review standards** (24 V.S.A. §4416) apply to site layout and design associated with the development of a particular property. Typically, site plan review looks at building sites, site circulation, access, parking, screening, and landscaping. Site plan review can also include standards to preserve or protect important elements or features identified on the site – including significant natural resources such as rare forest communities, wetlands or endangered species. It's important to note, however, that site plan review does not apply to single or two-family homes, as specified in statute, and is therefore probably not the best option for conserving large tracts of land.
- **Conditional use standards** evaluate certain uses for which it has been determined that an additional level of review is necessary to identify and avoid or mitigate the impacts of development. If communities choose to label certain uses as "conditional," then state law (24 V.S.A. §4414(3)(A)) lists certain *general conditional use standards* that must be included in any conditional use review process (for example, to address impacts on local roads, community facilities and services, and neighboring properties). Though these general conditional use standards do not address natural resources, state law (24 V.S.A. §4414(3)(B)) also gives communities the option to include *specific conditional use standards,* including "any other standards or factors that the bylaws may include." Specific standards often address impacts to natural resources – especially if

Tim Newcomb

applied to allowed uses within resource conservation districts.

- **Subdivision standards** are a required part of any subdivision bylaw. State statute (24 V.S.A. §4418(1)) specifies that these must include "standards for the protection of natural resources…as appropriate in the municipality" in association with the creation of new lots. Other required subdivision standards govern the layout of streets and utilities, guide the design and configuration of parcel boundaries, and ensure that the layout of lots and supporting infrastructure implements the desired settlement pattern as detailed in the municipal plan. Statue specifies that communities may include supplemental standards as well, and that these can be used for natural resource protection (24 V.S.A. §4418(2)). Since the subdivision of land typically precedes its sale and development, resource or open space protection standards applied at this stage of review are particularly important.
- **Planned Unit Development** (PUD) (24 V.S.A. §4417) allows communities to be flexible in the application of land development regulations under subdivision or conditional use review – subject to additional PUD standards, as required by statute – including, but not limited to open space standards. Standards that require the clustering of development and guide the layout of roads and utilities, the location of structures, and the location and use of open space can all help protect large forest blocks and wildlife resources.

When it comes to the types of standards communities may choose to develop, Vermont's enabling statute goes one step further. It authorizes towns to adopt one or more of the review criteria from 10 V.S.A. §6086 (the ten criteria used in Act 250 review) under conditional use review (24 V.S.A. §4414(3)(C)) and subdivision review (24 V.S.A. §4418(2)(D)). Act 250 criteria are more commonly addressed in communities that have adopted "local Act 250 review" of municipal impacts (24 V.S.A. §4420), which gives local decisions additional weight under some criteria in related Act 250 proceedings. The advantage of adopting Act 250 criteria is that the standards are comprehensive and familiar to many developers. The potential downside is that the criteria may be difficult for many applicants and local boards to interpret without the help of experts.

The Importance of Developing Clear Standards

It is important that resource protection provisions or standards in local bylaws (and plans that are intended for use in Act 250 or other regulatory proceedings) are very clear and consistently applied to withstand legal challenge. Just as importantly, clear standards help the applicant and municipal review boards to interpret the regulations. A regulation must:

- **Clearly identify and define the resources to be addressed** so that the review panel, the applicants, and other participants know what resources are to be identified, evaluated and conserved. Note that a map alone may not be enough; resource maps should be accompanied by clear bylaw definitions or standards that more specifically describe the type and characteristic of the resources to be addressed. See *Chapter 18, Writing Clear Definitions* for more information.
- **Include specific standards in clear, unqualified language** especially with regard to avoiding or mitigating the impacts of land subdivision or development on those resources identified for protection.
- **Identify priorities.** If you are trying to achieve "balance" between development and resource protection, it's important to clarify how competing objectives should be prioritized and addressed.

Guidance from Vermont's courts suggest that, to survive a legal challenge, standards must:

- Sufficiently guide municipal decisions;
- Give sufficient notice and information to applicants and property owners affected by the regulation;
- Be sufficiently clear to guide the conduct of an average person, using common sense and understanding;
- Spell out the desired level of protection in the regulations, for example requiring that the impacts of development be completely avoided, or allowing for mitigation through the use of best management practices.

JAM Golf and the Importance of Being Specific

Clear standards – especially for natural resources – are more important than ever because of a 2008 Vermont Supreme Court Decision (In re: Appeal of JAM Golf, LLC, 2008 VT 110). In this decision, the court struck down portions of a South Burlington zoning bylaw that required "protection" of "important natural resources including streams, wetlands, scenic views, wildlife habitats and special features such as mature maple groves or unique geologic features." These sections of the bylaw were ruled unenforceable because they lacked standards for what constituted "protection," and did not specify the conditions under which such protection would apply. The take-home lesson of the JAM Golf decision is that if standards for protecting habitat and natural areas are to be legally defensible, they have to be clear, specific and consistent.

In addition, wherever possible, standards should provide guidance about how the standard can be achieved (e.g., through clustering, buffers, adherence to an approved forest management plan). Otherwise, the reviewing body can be given too much discretion (referred to by one court as "unbridled discretion") causing problems for both the applicant and the reviewers and, in the event of a legal challenge, the municipality.

Without an adequate level of detail, a bylaw can be deemed too vague to enforce, as the JAM Golf court case demonstrated (see sidebar on previous page). In fact, a follow up case (In re: Highlands Development Co., LLC) delineated what the failure to protect looks like.[1] That decision said that "even if the resource or feature under consideration is clear – for example, a clearly mapped stream or wetland – a [regulation] is unconstitutionally vague if it provides no standards."

(For more on applying Development Review Standards, see the Vermont Planning Information Center Topic Paper 19-3, "Open Space & Resource Protection Regulations," available at http://vpic.info/ImplementationManual.html)

Implementation

Municipal Plan

Incorporate clearly stated resource protection policies and objectives in the municipal plan. The municipal plan describes what a community wishes to achieve and establishes the framework for plan implementation, including the adoption and update of local land use regulations. Local bylaws and associated resource protection standards must conform to and have the purpose of implementing the municipal plan. A clear description and discussion of natural resources in the plan and specific policies or objectives for their protection or conservation is key to developing and implementing good bylaw standards.

André Jenny

If a bylaw is contested in court as too vague, a well-written town plan may provide needed clarification and guidance. Consistent and clearly stated municipal plan policies and objectives, in addition to providing guidance for the development of review standards, can also be referenced in Act 250 and other local and state development review proceedings. (See *Chapters 12-14, Conservation Zoning Districts, Forest Zoning Districts,* and *Overlay Districts.*)

Writing Standards[2]

Ensure that each zoning district has a clear purpose statement. In a zoning bylaw, each description of a zoning district should begin with a purpose statement. A well-written purpose statement describes the goals of each district. If there is a lack of clarity in other parts of the zoning bylaw, a purpose statement can help users of the bylaw (and if necessary, the courts) interpret the standards of the section. For example, if a community wants to protect large forest blocks, the purpose statement can say that the district's purpose is to "ensure that large blocks of forestland (parcels over 50 acres) are maintained so that they can continue to provide economic, ecological, and wildlife habitat benefits."

In addition to having a purpose statement for each zoning district, there should be a purpose statement for the entire zoning bylaw, and for sections pertaining specifically to resource protection. Most subdivision regulations also open with a purpose statement or a list of objectives that the subdivision regulation seeks to achieve. (See *Examples of Development Review Standards.*)

Develop specific guidance and standards, using text and illustrations. Bylaws should be written with numerical (quantitative) guidelines if at all possible. For example, "slopes greater than 20%" is better than "steep slopes." "Lots larger than 25 acres" is preferable to "large lots." When the standard allows for some flexibility (like "mitigation" rather than just outright "prohibition), it is important to be clear about what types of actions can be taken to achieve the standard. Guidance on siting can also include illustrations.

Bylaw provisions should provide clear guidance on how to avoid or mitigate impacts. This can be accomplished with your choice of language. For instance, "mays" allow for some flexibility on the part of the applicant and review panel, but may not be enforceable unless agreed to and incorporated under conditions of approval, whereas specific requirements or "shalls" must be met for board approval. This is illustrated by an example from the Town of Bolton's 2005 Land Use and Development Regulations:

"(D) **Natural Areas & Wildlife Habitat**. Subdivision boundaries, lot lines and layout, and building envelopes shall be located and configured to avoid the fragmentation of and adverse impacts to natural areas and critical wildlife habitat

identified in the town plan, by the Vermont Department of Fish & Wildlife, or through site investigation. Methods for avoiding such adverse impacts include but may not be limited to the following:

(1) Building envelopes shall be located to exclude identified natural and critical wildlife habitat areas, including but not limited to wildlife travel corridors, deer wintering areas, critical bear habitat areas, peregrine falcon nesting sites, and rare, endangered or threatened natural communities.

(2) A buffer area of adequate size, as determined in consultation with the Conservation Commission, state officials or other qualified consultants, shall be established as needed to protect critical wildlife habitat areas and natural communities.

(3) Roads, driveways and utilities shall be designed to avoid the fragmentation of identified natural areas and wildlife habitat.

(4) The Board may require the submission of a management plan, prepared by a wildlife biologist or comparable professional, to identify the function and relative value of impacted habitat, and associated management strategies.

(5) Identified natural areas, critical wildlife habitat and associated buffer areas should be included as designated as open space, in accordance with Section 7.4 [Open Space and Common Land]."[3]

Define all terms in the purpose statement and the body of the text. Bylaws should include clear definitions (e.g., in the "definitions" section) that explain terms to reduce vagueness and avoid confusion. Though certain terms may seem straightforward, it is important not to assume that terms are common knowledge. For example, "wildlife habitat" and "steep slopes" are two examples of terms often found in zoning bylaws without definitions. (See *Chapter 18, Writing Clear Definitions* for more on this topic.) It is equally important to define how resources should be protected, or the techniques used to do so (i.e., building envelope, management plan, vegetated buffer).

Use plain language. When courts read bylaw language, they read them "according to their plain and ordinary meaning," which is another reason to use language that is clear and well-defined.[4] Two ways to make the language as plain as possible include:

(1) Using the active voice:

Example: active voice (good): "The applicant shall submit a map that shows all natural resources present on the parcel." This specifies who will take the action – the applicant.

Example: passive voice (avoid): "A map showing all natural resources present on the parcel shall be submitted." This is vague because it does not say who is responsible for submitting the map.

(2) Using "proscriptive" language that tells the applicant and review board what must happen, rather than what could happen. The following table summarizes examples of clear and ambiguous language:

Clear	Ambiguous
Shall	Should
Must	May
Maximize	"Considerations"
Minimize	Where appropriate
The applicant will…	Where feasible
The development review board must find…	Where reasonable
	The development review board may require…

Things to consider:

Do not cut and paste standards from another community. Another community may have on-the-ground conditions that mean their standards make sense in their context, but not in yours. You can use another community's standards as a guide, but look carefully at what makes sense in your community, consulting with your regional planning commission, the Vermont Fish and Wildlife Department, the Vermont Department of Forests, Parks, and Recreation, a biologist, or other resource.

Think about writing standards in terms of usability for both the applicant and the review board. Standards are not simply rules; they are tools for advancing the goals of a community. Make them easy to use and understand by including clear, plain language, illustrations, and measurable standards. This will ease the process for both the applicant and the reviewing body.

Including clear, proscriptive language can be challenging as local boards seek to balance flexibility and clarity. Including "shalls" and "musts" in bylaw language (and the municipal plan) can be a challenge for planning commissions and selectboards. There is often an understandable desire

More Information

The Land Use Planning and Implementation Manual, Development Review Training Modules: Interpreting and Applying Development Standards, along with other modules on development review, provide information to help review boards make fair and consistent decisions in the development review process. www.vpic.info/Publications/Reports/DevelopmentReviewModules/Interpreting.pdf

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to avoid placing requirements, which may seem harsh or inflexible, on one's neighbors. Often, community members will feel that a word like "should" adequately reflects local desires (for example, "Development of homes on ridgelines should be avoided"). However, from an applicant's perspective, and from the perspective of the courts, this kind of language is not decisive. It may leave room for land uses that undermine the community's goals, and it gives the local reviewing body insufficient guidance for fairly and equitably reviewing development proposals. For these reasons, when creating or updating regulations, it is essential for the community to understand what different language choices will – and will not – achieve.

Craft language carefully to strike a balance between legally defensible, yet flexible, standards. One of the biggest challenges that municipalities face is drafting standards that fit a variety of situations (i.e., are flexible and fair) yet contain the kind of detail described above — especially because courts have criticized and thrown out bylaw standards that give review boards "unbridled discretion." If the town intends to provide flexibility, the bylaw must also provide specific guidance so that the applicant and the board can follow and apply the standards. This helps to ensure that the bylaw will not be interpreted as giving the board unbridled discretion.

Jake Brown/VNRC

Remember that certain uses are exempt from municipal regulation. As you craft standards for different districts and uses, keep in mind that silvicultural practices cannot be regulated by local bylaws (see 24 V.S.A. §4413 for a full list of exempt activities). Clearing of land for purposes other than forestry and silviculture can be regulated. This can be done by creating standards that require maintaining a certain percentage of forest/vegetation cover, defining building envelopes, and requiring limits on road lengths.

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12 . Conservation Zoning Districts

Overview

Depending on a community's goals and landscape, specific forest and wildlife resources may be better addressed in a conservation district rather than a separate "forest district."

Conservation zoning districts can be used to preserve natural resources that could be affected by development. They typically encompass areas defined by the presence of one or more natural features such as blocks of productive forest land, important wildlife habitat, wildlife corridors and crossing areas, rare plant communities, high elevations, scenic ridgelines, steep slopes, wetlands, riparian and water source protection areas. A conservation district can limit development and impose standards to protect locally significant resources – for example, to avoid forest fragmentation, or to ensure that the design and siting of development minimizes adverse impacts to identified resources. Conservation goals can be achieved through "overlay" districts as well, depending on the type, location and extent of identified resources to be conserved; these may focus on particular resources, such as wetlands, or on resources that cross multiple zoning districts, such as wildlife corridors. (See *Chapter 14, Overlay Districts*).

Conservation districts are often designated to conserve high elevation forest resources, but can also be used to protect significant resources found in low-lying areas, such as important wildlife corridors and crossings, or rare communities such as sandplain or clayplain forests, or floodplain forests, which are typically more biologically diverse than higher elevation forests.

VNRC

Conservation districts can also incorporate land that has been or is intended to be conserved under other programs (e.g., public lands, conserved lands, and land above 2,500 feet in elevation) as identified in the municipal plan, an open space plan, or related documents.

Of the 211 Vermont towns that have land use regulations, 51% (107) have conservation zoning districts.[1] Of these, only 49% mention wildlife, and only 29% review single family housing as a conditional use. This means that even communities that already have conservation zoning have opportunities to strengthen their regulations by adding definitions, siting standards and review standards that uphold the purpose of the district.

Common characteristics of conservation zoning districts include:

- ***Lot area requirements that are tied to the resource management goals and purposes of the district*** (e.g., lot sizes that correspond to viable farm or forest management). This may include large lots or forms of density-based zoning that are intended specifically to limit forest fragmentation.
- ***Field verification of mapped resource areas when a development proposal is made***, to ensure that resources shown on available maps and inventories are identified and delineated on the ground at a specific site.
- ***Low average development densities*** that may also include clustering or locating new development near existing settlement to limit encroachments, site disturbance and resource fragmentation within conserved areas.
- ***Limited uses that are compatible with and support resource conservation.*** Examples include forest management, wildlife management, and outdoor recreation.
- ***Exclusion of incompatible land uses.*** Examples include most commercial activities or year-round housing.
- ***Conditional use review of most uses*** (including single family dwellings if allowed), and associated review standards intended to evaluate and minimize the impacts of development on important resources. Subdivision regulations should also incorporate standards specific to these districts and resources to limit forest parcelization and fragmentation in subdivision review.

- ***Setback and buffering requirements*** to protect important natural resources such as wetlands, shorelands and riparian corridors, vernal pools, wildlife corridors, deer wintering areas, mast stands and rare, threatened, or endangered species.

Statutory Authority

24 V.S.A. §4414

The general purpose of agricultural, rural residential, forest, and recreational zoning districts is to "safeguard certain areas from urban or suburban development and to encourage that development in other areas of the municipality or region..." (24 V.S.A. §4414(1)(B)). Uses in these districts may be limited to identified resource management objectives (e.g., farming, forestry, outdoor recreation). They may exclude other types of land use and development, or allow only limited, compatible land uses (e.g., housing) at very low densities. In this way, conservation districts serve as a complement to other zoning districts that encourage Vermont's compact downtowns, villages, and neighborhoods, and help preserve Vermont's historic settlement pattern.

Implementation

Natural resource inventory maps, open space plans and, most importantly, town plan policies and implementation strategies provide the basis for implementing a new (or extended) conservation district.

Municipal Plan

Check municipal plan maps. Make sure your town plan includes or references relevant resource inventories and maps. Plans are not required to include resource maps, but for conservation and other zoning districts, like overlay districts, maps and inventories are very important. Check to see which natural resources are currently included on plan maps. Consider these questions: Are there natural resources that are missing, or information that needs to be updated? Have wildlife crossings been acknowledged and incorporated where appropriate? Are the future land uses, and potential development patterns, compatible with preserving the large forest blocks and other natural resources that are important to your community? Work with your regional planning commission and/or conservation commission to analyze threats and opportunities for natural resources, and ways to address them.

Include goals and policies in the plan about the town's important natural areas. Plan goals and policies can help lay the groundwork for conservation districts by addressing resources such as:

- forest blocks, productive forest soils, important water resources;
- wildlife habitat and connectivity;
- rare, threatened, and endangered species;
- significant natural areas;
- deer wintering areas.

Specific plan policies regarding resource protection may also be used in other local, regional and state planning initiatives, and in Act 250 and Public Service Board (Section 248) proceedings. Town plans can also include actions, such as conducting a natural resources inventory or community values mapping exercise. (See *Chapter 4, Conservation Planning.*) And, plan policies associated with municipal infrastructure, roads and utilities should be coordinated with natural resource policies to ensure that areas targeted for conservation are not served by new or upgraded facilities that could foster development.

Identify proposed conservation districts in the town plan's land use section, in related action items (e.g., zoning district updates, bylaw amendments), and generally indicate or reference the district on the plan's proposed land use map. The land use section of the plan is required to include a proposed land use map, and to indicate "those areas proposed for forests, recreation … public and semi-public uses, and open spaces reserved for flood plain, wetland protection, or other conservation purposes" (24 V.S.A. §4382). This, along with the action steps in the municipal plan, will help implement the plan's goals and policies.

Zoning Bylaw

Define more specifically those area(s) or resources indicated in the plan to be included in the conservation district. Conservation districts may include undeveloped blocks of land, defined by property boundaries or natural features, that are not well-served by roads, water, and sewer. Some conservation districts are defined as "all land above a certain elevation," to include fragile, high-elevation and/or predominately undeveloped areas with no or limited access to roads and utilities; this can be a helpful approach for defining important forested areas. Other conservation districts may include lower elevation areas, with district lines drawn to include various features like mapped forest communities, deer wintering areas and wetlands, or all land that is a specified distance from public roads. For a conservation district to be successful, the protected resources must be clearly defined and mapped so that they are easy to identify on the ground. This can be done via clear descriptions in zoning bylaw, and detailed maps based on town-specific natural resources inventories. (See *Chapter 18, Writing Clear Definitions* for more information.)

Decide on lot sizes. In Vermont, minimum lot sizes in conservation districts generally range from 5 acres to 50 acres, although significantly larger lot sizes are common in other states. While smaller (5 to 10 acre) lot sizes are often

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perceived as preserving a rural, open feeling, lots of this size can actually undermine the purpose of a conservation district if lot area requirements result in unnecessary parcelization and resource fragmentation. Lot sizes should be determined primarily by the type and extent of the resource(s) to be protected, and by considering existing lot sizes.

Develop review standards and processes. Development that is not carefully sited with respect to features on the parcel can also undermine the purpose of the district. For example, long driveways can fragment resources, and development that is too close to streams or wetlands can lead to runoff or erosion problems. Even with larger lots, careful siting of development is important to minimize impacts to local resources. Standards may include measures that:

- limit development density and require the clustering of development to avoid or minimize impacts on sensitive resources;
- require undisturbed buffer areas around protected resources;
- limit the length of driveways and utility corridors and require that they follow existing linear features (e.g., rights-of-way or forest edges) and natural contours to limit encroachment and avoid resource fragmentation;
- require the designation of "building" or "development" envelopes that limit the extent of development on the lot to ensure that activities incidental to the use, including clearing and yard area, do not adversely affect identified resources;
- require management plans and monitoring programs for protected resources and associated buffer areas;
- prohibit any placement of fences, walls, or substantial changes in grade that would disrupt the movement of wildlife within a wildlife corridor.

Courtesy Vermont Fish & Wildlife Department

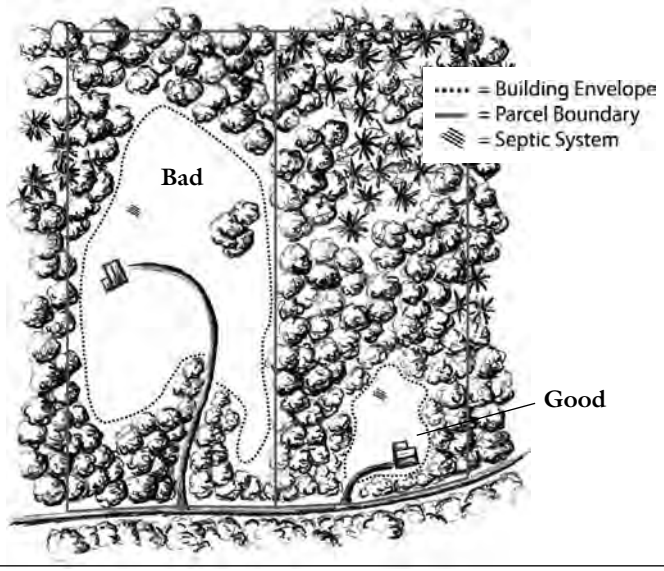
These standards can be applied as district standards, which would apply to all development in the district, or conditional use standards, applying only to conditional uses. (See *Case Studies: Examples of Development Review Standards.*) Standards of this kind may also be used in subdivision regulations.

Decide on a review process for obtaining site-specific information. To verify that the resources on a specific parcel are actually present and ensure that they will be protected, the review process for development in a conservation district should include the collection of site-specific information. This helps guide development on individual sites, and can be done in many ways: by requiring the applicant to hire a consultant, conducting site visits, having the town pay for a site-specific evaluation, consulting with the Department of Forests, Parks, and Recreation and/or the Vermont Fish & Wildlife Department (as their availability allows), or engaging the local conservation commission to review the site and make recommendations to both the applicant and the town. Many communities will find it important for regulations to balance the need to acquire additional information with the costs to the landowner.

Write clear definitions. Include clear definitions in your zoning bylaw to show what resources are being protected and

Building Envelopes

The larger building envelope (left) clears a large amount of forestland, while the more limited envelope (right) minimizes the impact of development.



More Information

The Land Use Planning and Implementation Manual, Topic Papers 19, *Open Space & Resource Protection Regulations* and 30, *Zoning Regulations* provide a more detailed description of how these regulations function and for what purpose. http://vpic.info/ImplementationManual.html

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to what level of protection. This is important for reducing any vagueness in the zoning bylaw (a vague bylaw can be difficult to interpret and enforce and, if challenged, may not stand up in court). For example, of the 211 Vermont towns with zoning bylaws, only 2% define "wildlife habitat." Most zoning bylaws also lack definitions for key resource terms such as "fragmentation," "significant wildlife habitat," "steep slopes," "core forest," and "vernal pools." (See *Chapter 18, Writing Clear Definitions.*)

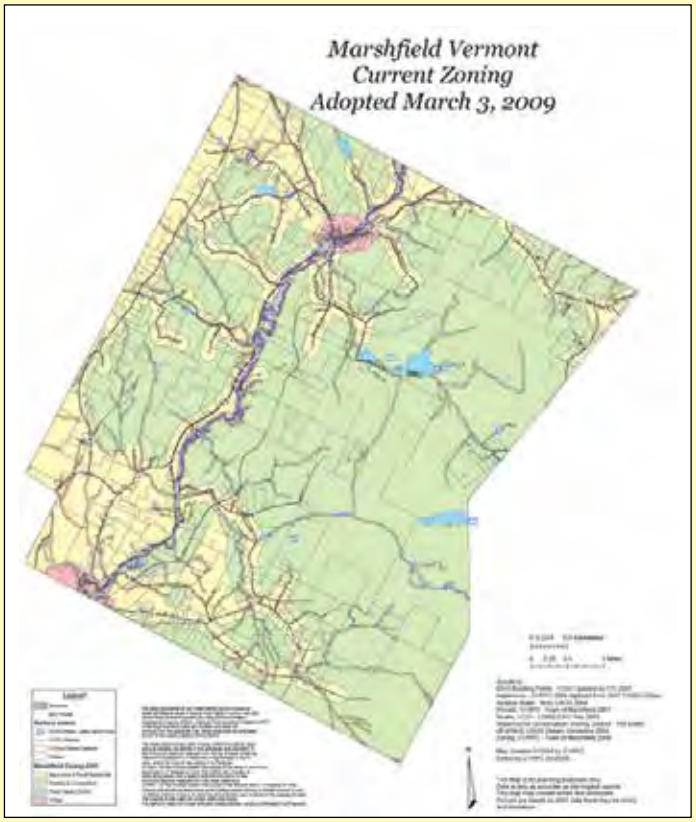
Things to Consider

Generate community support. Creating a conservation district that limits the type, amount and density of development in designated areas can be controversial. It's important to build on community values, and to work with affected landowners. Make sure that the public process is open and includes education about why resource conservation is important, and that there's community support (which should be expressed in the town plan) to protect locally significant resources, including forestland and wildlife habitat.

Case Studies

Conservation Zoning Districts: Marshfield, VT and Bolton, VT

The following conservation districts in Marshfield and Bolton actively limit development, and include clear review standards to evaluate development. While other aspects of the bylaws may differ, these two components are key to a successful conservation district.



Marshfield

Marshfield's "Forestry and Conservation District" may be unique in Vermont in that it covers the majority of land in town. As shown on the zoning map and described in the zoning regulations, this district includes the "largely unsettled part of Marshfield outside of those areas that have traditionally served for residential and agricultural uses. The district provides vital wildlife habitat and significant opportunities for outdoor recreation, in addition to its very important function as a woodland" (p.10).

Permitted uses in this district include: agriculture, forestry, outdoor recreation (public or private non-structural), wildlife refuge, reservoir and camps. Residential uses are also allowed, but only within an approved planned unit development (PUD). Nonresidential buildings, recreational bridges, parking areas and development on slopes between 15% and 25% require conditional use review. Development is prohibited on slopes greater than 25%.

Marshfield protects forest resources within this district through PUD provisions in the regulations. Residential uses within a PUD are allowed at a minimum density of one unit per 10 acres; at least 50% of the land must be permanently reserved as open space. In addition, the PUD must be designed so that significant portions can be kept in tracts suitable for forestry or agriculture.

Marshfield's zoning and subdivision regulations are available on the town website: http://www.town.marshfield.vt.us/.

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Case Studies: Marshfield and Bolton, VT, *continued*

Bolton Conservation District

The Town of Bolton's Conservation District is more limited than Marshfield's – it includes only permanently conserved land and land over 2,500 feet in elevation. However, it is also more restrictive in the type and amount of development allowed. The district's purpose is to "protect Bolton's generally remote and inaccessible mountainous areas – which include significant headwaters and aquifer recharge areas, unique and fragile natural areas, critical wildlife habitat, and mountainsides and ridges characterized by shallow soils and steep slopes – from fragmentation, development, and undue environmental disturbance, while allowing for the continuation of traditional uses such as forestry and outdoor recreation" (p. 19).

Permitted uses in this district are limited to agriculture, forestry and wildlife management. Some ski area facilities (e.g., trails, lifts), primitive campsites, passive outdoor recreation and telecommunication towers are allowed, subject to conditional use review. However, no residential or other buildings are allowed within the district. The minimum lot size is 25 acres, to ensure that parcels remain eligible for enrollment in the state's Current Use Program.

Various standards guide development in this district to minimize development impacts. Specific *supplemental standards* apply to subdivisions and allowed development:

- A structure within the district must be located within a designated building envelope approved by the DRB under subdivision review or conditional use review.
- A structure(s) in the district, excluding ski lifts or telecommunications facilities, shall not:
  - have a total footprint area greater than 2,000 square feet,
  - be connected to or served by off-site utilities,
  - be sited on exposed ridgelines or be visible from public vantage points, including public roads.

The district's *conditional use standards* state that the Development Review Board may:

- limit the extent of site clearing and disturbance, including the removal of existing vegetation;
- require screening or reforestation as necessary to minimize the environmental or visual impacts of development; and
- require the submission of environmental or visual impact assessments, lighting plans, and forest, wildlife habitat, erosion control and/or stormwater management plans for board review and approval.

In addition, access roads and driveways in this district must be designed and located to:

- share existing rights-of-way and/or follow existing linear features (e.g., tree or fence lines),
- minimize their visibility as viewed from public vantage points, including roads,
- minimize the extent and number of stream crossings, and avoid the fragmentation of wetlands, significant wildlife habitat, natural areas and timber stands.

There are also requirements that apply when land in this district is subdivided. While the regulations allow the DRB to require the submission of management plans, according to the DRB chair these have not been required to date, since the requirements for such plans have not been clearly defined in the regulations or application materials. Instead, the DRB has relied on recommendations received from the Vermont Department of Fish and Wildlife to address development impacts in this district – including ski lift and trail development in the vicinity of Bicknell Thrush habitat.

Bolton's Conservation District regulations are available at: http://www.boltonvt.com/planning/UnifiedLandUseRegs/ArticleIIZoningDistricts.pdf.

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13. Forest Zoning Districts

Overview

Of the 211 Vermont towns that have land use regulations, 22% have a forest zoning district.

The purpose of forest zoning districts is to promote the sustainable, long-term management of forest resources and related uses, including forestry. By establishing districts where forests are the focus, municipalities can reduce forest fragmentation and ensure that large tracts of land remain available for forest management as well as for other functions, such a wildlife habitat and outdoor recreation. Forest districts frequently encompass land at high elevations, and limiting development in these areas can have the added benefit of protecting other resources important to the community, such as scenic ridgelines, steep slopes, wildlife habitat and headwaters.

Within these districts municipalities may require very low densities of development, or prohibit development unrelated to forest management. Because the success of a forest district relies on very low development densities and avoiding conflicts between incompatible land uses, limiting the type, location and overall density of development is one of the most important tools for keeping working forests intact.

Common characteristics of forest zoning districts include:

- **Large lot requirements** that enable forest management, allow participation in the state's Current Use Program, limit forest parcelization and resource fragmentation, and support other resource management goals.
- **Low average development densities and prohibitions on most development.** For example, forest districts often exclude year-round residential uses, but may allow seasonal hunting camps, lean-tos and tent platforms associated with outdoor recreation.
- **Development standards** within the zoning bylaw that evaluate the impact of development on forest resources, typically through conditional use review – including the review and siting of single family residential development, if allowed.
- **Standards to protect access to forest parcels** (e.g., logging roads, landing areas) for forestry and resource management.

Jamie Fidel/VNRC

Forest zoning districts are appropriate where:

- **The groundwork has been laid in the municipal plan.** This can be done within natural resource, land use, and/or economic development sections, with plan goals and policies that promote forestry, and plan maps that identify those places in town where it is most appropriate.
- **There are good forest soils, and large tracts of undeveloped forestland** that are currently in forest management (which may overlay with management that's considered "agricultural," such as maple sugaring), or that could support future forestry operations.
- **There are large forest tracts in remote upland areas** (i.e., areas unlikely to be developed because of their inaccessibility).

Statutory Authority

24 V.S.A. §4414

Vermont statute recognizes the importance of forestry to Vermont, and specifically enables municipalities to create a "forest district" that is limited to forest management, if they choose (24 V.S.A. §4414(1)(B)). A forest district helps keep forests available for forest management, wildlife resources, recreation, and other benefits. Though the statute recognizes the benefits of keeping forests free from development, it defers to the municipality on whether it is necessary to prohibit or simply limit development to meet this goal.

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Implementation

Natural resource inventories, maps, and town plan policies provide the basis for implementing a new (or extended) zoning district.

Municipal Plan

Map important forest resources. Local plans must include a future land use map that identifies and designates forestland, based on available resource inventories and analysis. Examine whether the town's future land use plan considers large forest blocks, productive forest soils, and whether inventories and maps reveal places where important forest resources are threatened by current zoning or development patterns.

Jake Brown/VNRC

Include forest and forestry policies in the municipal plan. Plan policies that address forestry, large forest blocks, and forest products manufacturing (for example, mill sites and concentration yards) lay the groundwork for establishing a forest district. Other natural resource values, such as wildlife habitat, can also be supported by a forest district; these should also be addressed through municipal plan policies.

Coordinate forest policies with road and infrastructure policies. Plan policies associated with municipal infrastructure, roads and utilities should be coordinated with natural resource policies to ensure that areas targeted for conservation are not served by new or upgraded facilities that could foster development.

Zoning Bylaw

Define the area to include in the forest district. Forest districts should generally correspond with municipal plan maps, but for zoning purposes they are often specifically mapped to include forested high elevation areas (for example, land above a specific elevation). These areas also typically incorporate headwater protection areas, mountainsides and ridges with shallow soils and steep slopes, and critical upland wildlife habitat – including "forest refuges" for plant and animal communities threatened by a warming climate. Forest districts typically incorporate numerous large, undeveloped parcels that are not served by developed roads or other infrastructure. Some municipalities define forest districts using setbacks (i.e., all of the land more than x feet from a road centerline). While this approach can capture parcels like the ones described above, the resulting "strip" patterns of residential development along the road may result in unintended consequences such as blocking wildlife movement and access for forest management, so careful consideration should be taken to define appropriate district boundaries.

Define the purpose of the district. Though the specific purpose of a forest district is typically to promote sound forest resource management, a forest district can also encompass a number of other resources and resource management objectives. The purpose(s) of the forest district should be clearly stated and consistent with plan policies and objectives for resource protection and development within these areas.

Decide on lot sizes. Minimum required lot sizes in a forest district should reflect existing lot areas, and be large enough to support forestry and sustain the ecological benefits of forests (in theory, the larger the better). At minimum, forest lots should be large enough (at least 25 acres) to ensure their eligibility for enrollment in the Current Use Program. Some towns set a minimum lot size of 27 acres if housing is allowed in the district in order to factor in the required two acre exclusion zone for a house site in the Current Use Program. However, it's important to note that larger parcels that are subdivided into 25 or 27 acre lots may still result in an undesirable level of fragmentation that undermines the purpose of the district. Larger lot sizes, where feasible, may help avoid this problem. Separating lot size from density is another approach. (For more information, see the *Open Space and Resource Protection Regulations* topic by the Vermont Land Use Education and Training Collaborative.[1])

Identify permitted and conditional uses. Forest districts will be most successful where the only allowed uses are those that are compatible with long-term forest management (such as sustainable timber harvesting and wildlife management). Many communities allow the on-site processing of forest products with portable sawmills under a broad definition of forestry. To accomplish this, municipalities may choose to limit all other development in a forest district, or to only allow other uses, such as seasonal camps and outdoor recreational pursuits that are common in managed forests.

Depending on established patterns of development, a municipality may choose to allow more uses (e.g. single family homes, commercial water extraction, home occupations, ski facilities, or telecommunications towers) as conditional uses, subject to conditional use review that limits their impact on forest resources.

Develop review standards and processes. Standards may include measures that require:

- designated building envelopes (e.g., on larger forested lots) that limit the extent of clearing and forest disturbance;
- limits on the number and length of driveways;

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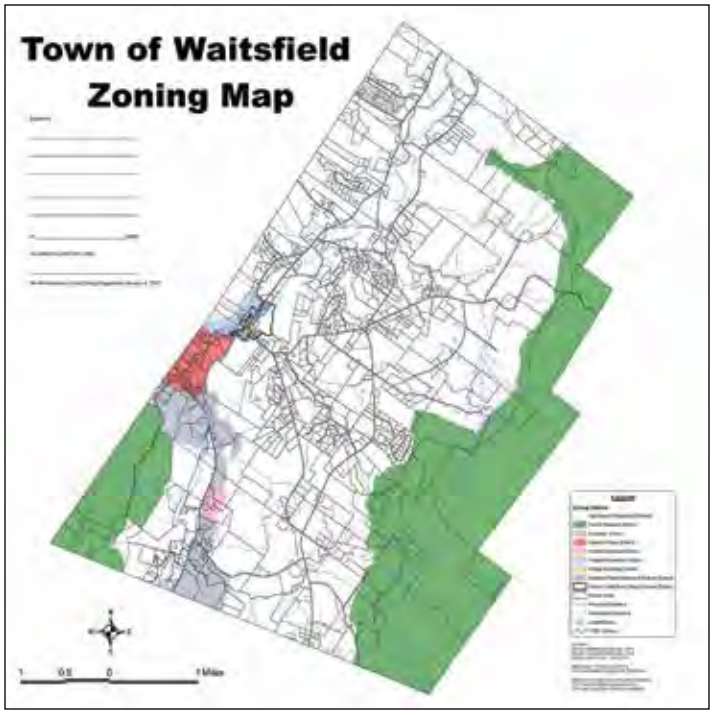
- shared driveways and utility corridors that follow existing rights-of-way or tree lines to limit forest fragmentation;
- review of all residential subdivisions as planned residential development (e.g., to cluster development on small building lots and retain large forested tracts as conserved forest lots), or require a clustered or conservation pattern as the default (see *Chapter 15, Subdivision Regulations*);
- limits on the upgrade and conversion of seasonal camps to year round use;
- maintaining access to upland forest tracts as necessary for forest resource management (including logging roads and log landings);
- stream buffers to protect headwaters;
- other protections for wildlife habitat, connectivity, and other natural resource protections.

These standards can be applied as *district standards*, which would apply to all development in the district, or *conditional use standards*, applying only to conditional uses. (See *Chapter 11, Writing Standards for Development Review.*) Standards of this kind may also be used in subdivision regulations.

Define key terms. Include clear definitions in your zoning bylaw to make clear a) what resources are being protected, and b) the specifics of different allowed uses (for example, specifying that seasonal camps cannot have permanent septic systems.) (See *Chapter 18, Writing Clear Definitions.*) In a forest district, terms like "forestry," "significant wildlife habitat," "outdoor recreation," and "seasonal camp" need to be carefully defined to ensure that the purposes of the district are upheld. For example, problems can arise if "camp" is not carefully defined (some towns have had trouble with "camps" being built that are actually large, year-round homes that do not fit the intent of the zoning district).

Things to consider

Understand statutory limitations. Bylaws cannot regulate accepted forest management practices as defined by the Commissioner of Forests, Parks and Recreation, but they can address the impacts of development within the district on forest resources. For example, bylaws can regulate forest clearing that is related to subdivision activity or housing development.



Generate community support. Creating forest or conservation districts may mean increasing the minimum lot size in that area of town, or limiting land uses that were previously allowed. Before attempting this, ensure that the community has shown interest through the town plan or other mechanism to protect forestland and wildlife habitat, and that the public process is open and includes education about why forestland protection is important.

Involve landowners in the decision making process. A proposed forest district that strictly limits development can generate controversy, even though the district may include areas that are largely inaccessible due to lack of roads – and are largely undevelopable because of steep slopes and shallow soils. Outreach to affected landowners can help better define district boundaries, and the appropriate type and pattern of development that should be allowed within the district.

More Information

The Land Use Planning and Implementation Manual, Topic Papers 19, *Open Space & Resource Protection Regulations* and 30, *Zoning Regulations* provide a more detailed description of how these regulations function and for what purpose. http://vpic.info/ImplementationManual.html

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What's In a Forest District? How Different Towns Approach Forest Districts

Purpose as stated in district purpose statement:	Bennington	Bolton	Marshfield	Starksboro	Waitsfield
Prevent fragmentation		x			
Promote forestry	x	x	x		x
Protect inaccessible areas		x		x	x
Protect natural areas/resources		x		x	x
Allow for recreation		x	x		
Conserve shallow soils/steep slopes		x		x	x
Protect water quality and/or supply		x			x
Protect wildlife resources/habitat	x	x	x	x	x
Minimum lot size (acres) A "minimum lot size" is the minimum acreage required for a parcel in a zoning district. It is a way to control a district's development, but alone does not control the pattern of development.	25	25	10	25	25
Clearing limits and building envelopes These standards are an attempt to define how much of a lot may be cleared for development. A fixed acreage can be a more precise way to control clearing, whereas a percentage can lead to greater loss of tree cover, especially on very large lots.	Max. building coverage: 1% Max. lot coverage (roads, etc.): 5%	1 acre max. building envelope for residential structures	20%	No clearing limit or building envelope	Building footprints +/ or envelopes may be required as a permit condition
Uses (permitted = P, conditional = CU)					
Accessory structure	CU	P*/CU*			
Agriculture		P*	P	P	P
Camping (primitive)		P			
Camps	CU	P*	P	CU	CU
Commercial water extraction					CU
Development on slopes between 15% and 25%			CU		
Extraction and quarrying		CU			
Forestry	P	P	P	P	P
Group home		P*			
Home child care		P			
Home occupation		P		CU	CU
Home industry		CU		CU	
Nature center		CU*			
Non-residential buildings			CU		
Parking			CU		
Planned Unit Development			P		
Public facility	CU	CU***			
Public utilities				CU	CU
Recreation (outdoor)		CU	P	CU	CU
Recreational bridges			CU		
Reservoir			P		
Roads				CU	
Single family & accessory dwellings		P*		CU	CU**
Ski facilities (alpine and Nordic)		CU			
Telecommunications	CU	CU			
Wildlife management		P			
Wildlife refuge			P		

** The Town of Bolton only allows these uses if the building envelope has been approved*
*** Only below elevation of 1,700 feet *** Only facilities related to parks and recreation*

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14. Overlay Districts

Overview

An "overlay" district is a resource-based zoning district. It is superimposed over underlying zoning districts to limit the impacts of development on resources that are found within more than one zoning district, or within only a portion of an underlying district. Since overlay districts follow the resource, they may apply to only a portion of a parcel — allowing development on land outside of the overlay district, while protecting resources on land within the district.

> ***As of 2010, 24 Vermont towns (11% of all towns) had natural resources overlay districts. Fourteen of these mention wildlife, but an additional 2 towns have overlay districts specifically for wildlife.***
>
> — *Wildlife Considerations in Town Planning: An Evaluation of a Decade of Progress in Vermont.* VNRC. 2011.

Overlay district boundaries are drawn around resource areas that have been identified for special consideration. In Vermont, overlay districts are commonly used to regulate development in flood hazard, wetland and riparian areas, but are increasingly being used to protect other natural resources, such as significant natural communities, wildlife habitat areas and travel corridors. "Special considerations" usually include different standards of review – for example, further limits on allowed uses, conditional use review of uses that require only administrative review in the underlying district, and/or district standards that apply to all uses in the overlay district. These supplement and are applied in addition to the underlying district's standards.

Forest overlay districts are not common since many forested areas are made up of large, contiguous parcels, making inclusion in an underlying forest district more appropriate. (See *Chapter 13, Forest Zoning Districts.*) Some forested natural communities, areas characterized by one or more type of wildlife habitat, and areas that provide connectivity between large forest or habitat blocks, however, are particularly well suited for protection through an overlay district. Additionally, all forests, and the issue of forest fragmentation, can — and should — be considered within resource protection, conservation, ridgeline/hillside, and/or critical habitat overlays.

Common components of overlay districts include:

- **Further limits on uses** that are otherwise allowed within the underlying zoning district.
- **Different density and dimensional standards** for development within the overlay district.
- **District standards** that guide the siting of development, and help evaluate the impact of development on resources included in the overlay district, for example, development clustering, setback and buffering requirements.
- **Consultation with natural resources specialists** to understand and evaluate site-specific resources, for example, with the town's conservation commission, a private consultant, or the Vermont Department of Fish and Wildlife.

Statutory Authority

24 V.S.A. §4414(2)

Vermont planning statutes authorize municipalities to adopt overlay districts to "supplement or modify" the requirements of underlying zoning districts with "provisions for areas such as shorelands and floodplains, aquifer and source protection areas, ridgelines and scenic features, highway intersection, bypass, and interchange areas…" (24 V.S.A. §4414(2)). Overlay districts are a specialized tool to carry out municipal plan policies and recommendations, and help communities manage these resources in ways that further local, regional, and state planning goals.

Implementation

Municipal Plan

Inventory and map important natural resources. Town plans often include natural resource maps, which are typically developed using available statewide data for resources such as deer wintering areas, rare, threatened, and endangered species, significant natural communities and wetlands. While these offer a starting point for creating an overlay district, they should be supplemented by additional inventories, field research and/or local data to update information and include additional resources, such as wildlife corridors.

Natural resource inventories and community values

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mapping can help further define important community resources. It is also important to understand and plan for local resources within their regional context (at the "landscape" level) since most natural resources exist and function across municipal (as well as zoning district) boundaries. (See *Chapter 4, Conservation Planning*, for more on these topics.)

Include policies to protect important natural resources. Town plans should discuss local goals for natural resources, and then identify the resources that would be best served by an overlay district, especially in areas of town where natural resources are most under pressure due to development. For example, a town plan might address rare natural communities or critical wildlife habitat, such as key wildlife corridors and crossings.

Include overlay district implementation strategies. Any proposed natural resources overlay districts should be mentioned in the natural resource, land use and implementation sections of the municipal plan, as the basis for amending zoning bylaws.

Zoning Bylaw

Define the purpose of the overlay district. Include a district statement or description that clarifies the purpose of the district. This statement should describe the resource(s) to be protected and incorporate related plan goals and policies specific to that resource. When conditional uses are being reviewed, the purpose statement is referenced, since it helps define the "character of the area" meant to be created by the district. It can also be useful to cite the statutory authority that enables this type of district.

Define the area to be included in the overlay district. Overlay districts can be used for species-specific protection (e.g., bear habitat; rare, threatened, or endangered species habitat) or for larger areas that cross underlying district boundaries (e.g., wildlife corridors that connect core habitat areas). The resources included should be based on a local inventory and identified in the town plan, then delineated on the zoning map (or a resource map referenced in the bylaw) and carefully defined in the text of the bylaw. (See *Chapter 18, Writing Clear Definitions.*) This is important so that the district's boundaries can be easily identified on the ground. Overlay districts defined in zoning bylaws should also be referenced and incorporated under local subdivision regulations to limit land subdivision and resource fragmentation within these areas.

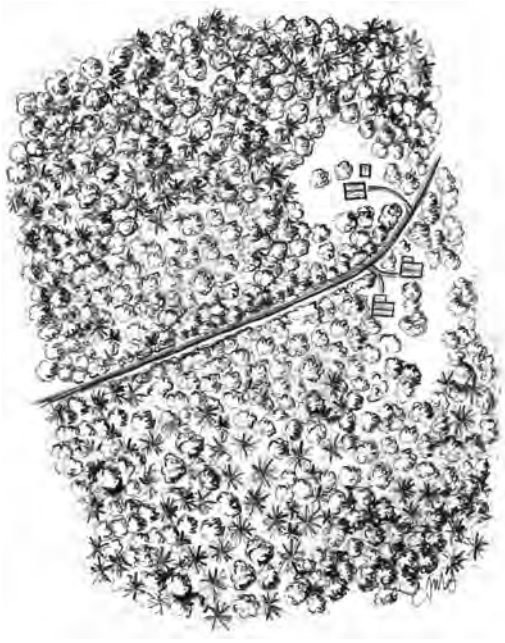
Identify permitted and conditional uses. These will vary depending on the overlay district's purpose and focus. Overlay districts can be used to exclude incompatible uses otherwise allowed in the underlying district, while still allowing for development of land that is outside of the overlay. The overlay can also be used to make uses that are permitted in the underlying district – including single-family

Overlay District

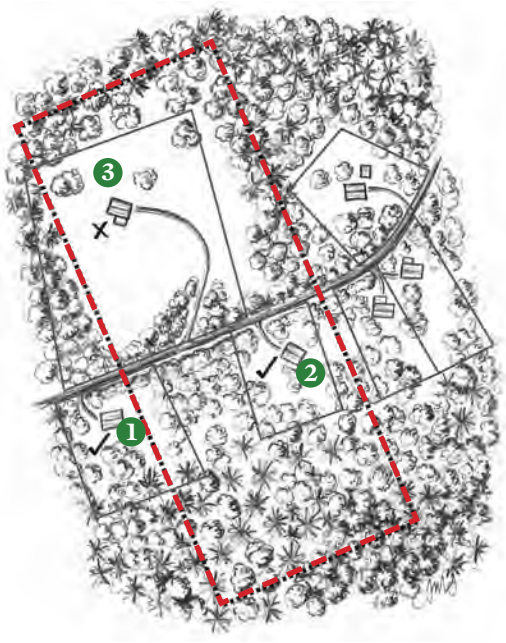
The illustration on the left shows a parcel before development. The forested area represents a wildlife corridor. The illustration on the right shows good and bad examples (numbered in green) of how houses can be sited in an overlay district.

1. Development should be kept outside of the overlay whenever possible.
2. When a whole parcel is within an overlay district, development should be as close to the edge as possible.
3. Development that fragments the resource should be prohibited or discouraged.

✓ = Appropriate Building & Clearing
X = Inappropriate Building & Clearing
— = Parcel Boundary
= Overlay District



Forest cover before development



Development within the overlay district

dwellings and other residential uses – conditional uses in the overlay district in order to apply district-specific standards for siting and resource protection.

Develop review standards. Overlay districts work by providing an additional layer of review within the district boundaries. This is done by applying additional, resource focused standards, which supplement the standards of the underlying district, and help avoid or limit impacts to the protected resources. These can be district standards, which apply to all development within the overlay district, or specific conditional use standards, which apply only to conditional uses within the overlay district. When communities choose to apply natural resource focused standards in the overlay district, they must have appropriate data to back it up.

For examples of standards that you can use in an overlay district, see *Chapter 11, Writing Standards for Development Review.*

Identify the review process. Because overlay districts are meant to address specific natural resources, the review process should include an evaluation of those resources present on the site being developed. This can happen in different ways, each with varying levels of cost and complexity. To identify and evaluate those natural resources present, and identify methods to avoid or mitigate the impacts of development, the bylaw may recommend or require that:

- Natural resources identified on the site (through field surveys) are shown on the site plan submitted with the application.
- A site visit is conducted as part of the review process.
- The local conservation commission reviews the application and makes recommendations to the applicant and the review board.
- The applicant consults with the Vermont Agency of Natural Resources, especially for resources that are of state interest or significance.
- The applicant retain a qualified consultant to conduct a more detailed resource impact assessment that identifies, delineates and evaluates resources present on the site, and includes recommended mitigation measures to avoid or minimize the impacts of the development on identified resources.
- The applicant (and/or town) pays for an independent technical review of the application and proposed mitigation measures, as specified in related policies and fee schedules.

For more on this topic, see *Chapter 11, Writing Standards for Development Review.*

Articulate how the overlay district relates to other zoning districts. Generally, an overlay is intended to be more restrictive than the underlying district. To avoid confusion, the zoning bylaw should clearly state that a) the rules of the underlying zoning district remain applicable, and b) the overlay district's standards, where more restrictive, are controlling.

Define key terms. Include resource definitions in your zoning bylaw that clarify what resources are being protected (see *Chapter 18, Writing Clear Definitions*). In an overlay district, terms like "fragmentation," "wildlife corridor," and "critical habitat" also need to be precisely defined to ensure that the purpose of the district is met.

Things to Consider

Translate science into regulation. Development review standards must be based on good information and good science, and this often starts with a natural resources inventory. Inventories do three things: they more specifically identify and delineate generally mapped resources, inform the types of regulation that are most appropriate, and serve as "backup" information that explains why review and regulation are needed. The time and expense of conducting inventories suitable for use as the basis for regulation can be a serious obstacle. However, there are a variety of options, including consultation with the Vermont Agency of Natural Resources, collection of existing and available data, and collection of additional and more detailed data through field inventories with professional biologists or ecologists. (See *Chapter 4, Conservation Planning.*) Furthermore, this information often needs translation or other technical assistance to make it useful for planning purposes. Be sure to include enough time for education of the commissioners as well as town residents.

Identify resources on the ground. In order to administer and apply overlay district standards, district boundaries must be clear to both applicants and those administering the regulations. It helps to show overlay district boundaries on parcel maps or orthophotos, at a measurable scale, and to incorporate physical features (e.g., roads, streams, or tree lines) in district boundaries where appropriate. It's also important to remember that maps and inventories serve as indicators that a resource is, may be, or has been present in a proposed project area. However, this information also needs to be field checked as part of the application and development review process to ensure that it's current and correct.

Make connections. If an overlay district's purpose is to preserve wildlife connectivity, it should connect areas, also called "anchor blocks," that have habitat value. Furthermore, it is important to ensure that the anchor blocks of habitat connected by a corridor overlay remain intact. This may require using different approaches – such as through the creation of a conservation or forest zoning district – to ensure that overall connectivity features between anchor blocks are maintained. For example, a corridor overlay that ends in a two acre residential zone may not ensure habitat connectivity

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given the potential fragmentation and loss of habitat at one end of the wildlife corridor; it may be better for this district to have a 25 acre minimum lot size, or require clustering of all development.

Ensure local acceptance. Communities wishing to protect natural resources may find that an overlay district that is limited in extent is preferable to a more inclusive conservation or forest zoning district. Essentially, an overlay district customizes regulation to targeted resource areas, unlike more broadly defined, blanket zoning district regulations.

Consider landowner interests. Landowner rights and interests should be considered in defining and administering overlay districts. A resource-based overlay district typically covers only a portion of a parcel, allowing the landowner to develop outside of the district; this is something to consider in defining district boundaries. In the rare instance that a parcel falls entirely within a restrictive overlay district and cannot be developed as allowed within the district, it may be necessary to ensure that the owner retains some economic use of the land.

Case Study

Overlay Districts

One of the earliest New England examples of a wildlife overlay district is Brunswick, Maine's "Rural Brunswick Smart Growth Overlay District" which includes "wildlife habitat block" and connecting "wildlife corridor" districts.[1]

Several Vermont communities – including Hartford, Marlboro, Reading, Shrewsbury, and Williston – have recently adopted or are working on overlay districts that regulate development within wildlife habitats and corridors. These overlay districts are based on mapped information, often prepared with the assistance of the Vermont Department of Fish and Wildlife or other qualified wildlife biologists. Williston, for example undertook a multi-year "Significant Wildlife Habitat and Travel Corridor Project" in association with UVM's Spatial Analysis Lab. A final report was referenced in the town plan update.[2] The town's conservation and planning commissions are now working on overlay district amendments to the town's bylaws.

Each bylaw includes a specific purpose statement. Hartford's "Wildlife Connector Overlay District," for example, is intended to "provide sufficient area for animals to move freely between conserved lands, undeveloped private lands, contiguous forest habitat, and other important habitat, land features, and natural communities within and beyond the boundaries of the Town in order to meet their necessary survival requirements." Shrewsbury has included mapped deer wintering areas and wildlife corridors in a "Special Features Overlay District" that also includes surface waters, wetlands, meadowland, steep slopes and ridgelines. Reading's proposed "Significant Wildlife Habitat Overlay District" is also intended to protect the town's mapped deeryards and wildlife travel corridors.

Courtesy Vermont Fish & Wildlife Department

Overlay districts trigger an additional level of review by the planning commission or review board – often in association with conditional use and subdivision review. Review standards may limit the type and density of development allowed in these areas, for example by requiring:

- Consultations with state officials, the local conservation commission, or qualified wildlife biologists, by the applicant or board, to determine the impacts of a proposed development on wildlife resources.
- The siting of development outside of the mapped overlay district wherever feasible.
- The siting of development near other existing development and roads.
- Limits on clearing, including the removal of natural cover.
- Contiguous habitat areas to be maintained within and across property boundaries.
- Mandatory buffers between development and important habitat areas – for example, around deeryards, mast stands, vernal pools, wetlands and rare or endangered plant and animal communities.

For assistance in developing wildlife habitat overlays and associated regulations, contact your regional planning commission, and the Vermont Department of Fish and Wildlife's Community Wildlife Program (http://www.vtfishandwildlife.com/cwp_home.cfm).

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15. Subdivision Regulations

Overview

While zoning defines the land uses allowed in different areas throughout town, subdivision regulations guide the *pattern* of development for the community (i.e., the division of a parcel of land for sale, development, or long-term lease). Traditionally, subdivision regulations have been used to ensure the efficient development of a community's built environment, focusing on the configuration of building lots to be served by municipal or private roads and infrastructure. However, because of the focus on how land is divided, subdivision regulations are also an important tool for reducing forest and habitat fragmentation, and reducing impacts on other natural resources.

Subdivision regulations can accomplish this by establishing standards for evaluating the impact of land subdivision on natural resources. This evaluation happens when land is being divided – before building permits are issued – and makes it easier to configure parcel lines, utilities, and roads to minimize impacts.

This is important because land subdivision (or "parcelization") is typically the first step in resource fragmentation. Whether subdivided land is ultimately developed or not, the division of land into multiple parcels can impact our forests since, with multiple owners, coordinated management of the land (like sustainable forestry) becomes difficult, and the large-scale functions of forests (like wildlife connectivity and flood mitigation) may become compromised. A lot line that divides a resource area (as shown on a "plat," a type of map that shows how the subdivision's parcel lines and roads will be laid out) initially may be invisible on the ground, but over time the land will likely show the effects of separate ownership and management.

Many communities not only regulate the configuration of lots under subdivision regulations, but also the location and extent of site disturbance and site improvements, including the future location of development roads, building sites or "envelopes," and supporting infrastructure. Some subdivision regulations establish formulas for regulating density based on both natural resources and a distance from a village in order to protect natural resources and direct development to existing centers. Other communities, such as Warren, Charlotte, and Fletcher, VT, require "conservation subdivision design," in which the subdivider must document the steps taken to identify and protect specified primary and secondary resources on the parcel, as defined by the community, and then incorporate these areas as conserved open space.

VNRC published a study in 2010 documenting subdivision trends in Vermont. One of the findings from case studies of subdivisions that took place between 2002 and 2009 in eight Vermont towns, was that *only approximately 1% of those subdivisions, accounting for less than 8% of all lots created (89 out of 1,159) in those towns, would independently trigger Act 250 review.*[1] While Act 250 did have jurisdiction over some additional parcels, due to prior development of the involved land, the remaining subdivisions relied entirely on local review, making clear how important it is to adopt local subdivision regulations that address a community's – and the state's – natural resource protection goals.

Subdivision standards – including standards that may be specific to subdivisions within a forest or conservation zoning district – can be used to:

- **Protect natural resources identified in the regulations,** including forestland, wildlife habitat, steep slopes, etc., via standards for lot layout and open space protection (preferably including provisions ensuring that designated open space is of a size adequate to support forest management and ecological goals).
- **Guide the subsequent development of subdivided lots** through the designation of building or development envelopes that limit the extent of clearing

A 2011 study by VNRC and the Vermont Fish and Wildlife Department found that approximately 51% of Vermont municipalities had stand-alone subdivision regulations, and nearly 90% of these had specific standards for subdivision review. Of the regulations with specific standards, 82% mentioned natural resources. In addition, the study found that subdivision regulations appear to better reflect key conservation concepts expressed in municipal plans than do zoning bylaws.

— *Wildlife Considerations in Town Planning: An Evaluation of a Decade of Progress in Vermont.* Prepared by VNRC. 2011.

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and the location of development on a parcel.
- **Limit resource fragmentation** associated with driveways, roads and utility corridors (e.g., by limiting the extent of private road construction and the upgrade of Class 4 roads, and by requiring shared road and utility corridors wherever feasible).
- **Consider current forest management/stand types**, in locating and configuring building lots and access roads, as needed to ensure ongoing forest management after subdivision.

In communities with an active forest industry, subdivision regulations may exempt from review the leasing of parcels for forestry purposes as long as accepted management practices for forestry are followed.

Conservation Subdivision Design

Conservation development is a type of land subdivision designed around the site's natural resources. This approach allows for the same number of homes to be built as in a standard subdivision, but in a less land-consumptive manner. At least 50% of the remaining land is permanently protected and added to an interconnected network of open space.

In contrast to cluster development, conservation design follows a particular five-step process for developing a site that includes determining a site's yield, identifying key natural and cultural resources to be protected, locating home sites, connecting roads and trails, and drawing lot lines. (For more details on this process, see the case study below about Warren, VT's approach to subdivisions.)

Like any tool, conservation developments have their strengths and limitations. For more information on conservation development, visit http://vnrc.org/resources/community-planning-toolbox/tools/conservation-developments/. See also Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks by Randall Arendt (1996).

These images show two different approaches to zoning and subdivision patterns. The image on the left represents five-acre lots, no limitations on how much land can be cleared, and a long road to maintain and plow. The image on the right shows a conservation design that leaves intact forest and open space.

Statutory Authority

24 V.S.A. §§4418, 4463

According to Vermont law, subdivision regulations must conform to and implement the municipal plan. They must also contain standards for the protection of natural resources and the preservation of open space, as deemed appropriate in the municipality. At a minimum, subdivision regulations must include:

- **The procedures and requirements for the design, submission and processing of subdivision plats, drawings and plans, and other supporting documentation** (such as maps and management plans for identified natural resources);
- **Standards for the design and configuration of parcel boundaries** as necessary to implement the municipal plan and to achieve desired settlement patterns for the neighborhood or district in which the subdivision is located;
- **Standards for the design and layout of supporting infrastructure** (e.g. streets, sidewalks, water, sewer and utility lines, stormwater management facilities, etc.).

Subdivision regulations may also include development standards that promote energy conservation and renewable energy. Municipalities may also choose to include (by reference) Act 250's ten criteria, and use those as local development review standards.

Municipalities may lay out a process for preliminary reviews prior to approval – including a less formal "sketch plan review" that allows an applicant to propose a subdivision in concept, and identify key resources to be protected prior to incurring the expense of a survey and preparing a more formal subdivision application.

Implementation

Municipal Plan

Establish the need for subdivision regulations. If your municipality does not currently have subdivision regulations, the intent to enact them should be written in the municipal plan. Here is an example of possible municipal plan language for doing this:

- "Regulate the creation of new parcels to ensure that the subdivision of land a) creates the desired settlement pattern for the district in which the subdivision is located, b) allows for the efficient and cost-effective provision of infrastructure and services to these areas and c) minimizes the impacts to natural resources as defined on [map] and described in chapter [x] of this plan."

Add action steps. "Adopt subdivision regulations," and "update subdivision regulations to include standards for

evaluating impacts on forest resources and wildlife habitat" are actions that can be added to advance the protection of forest and wildlife resources under new or updated subdivision regulations.

Zoning Bylaw

Utilize subdivision regulations in tandem with zoning bylaws. Combining the subdivision and zoning bylaws into a single document (referred to in statute as a "Unified Development Bylaw") can streamline various steps in the review process, for example, by providing for a single or concurrent review process (e.g. incorporating conditional use review, PUD review, subdivision review and site plan review) – saving time for both local officials and applicants. In addition, it is helpful to coordinate zoning and subdivision standards by, for example, targeting different subdivision standards to appropriate zoning districts.

Subdivision Regulations

Establish community support. Creating a subdivision regulation "from scratch" should be done in consultation with your town planner, regional planning commission, or a planning consultant, and of course, community members. Particularly for communities that have previously handled subdivisions within the zoning bylaw, it will be important to communicate how a stand-alone regulation will better serve the community's goals – rather than being just another layer of regulation.

Update natural resource standards in existing subdivision regulations. As previously noted, under Vermont law subdivision regulations must include "standards for the protection of natural resources and cultural features and the preservation of open space, as appropriate in the municipality." To meet this statutory requirement and achieve local goals, existing subdivisions can be updated to:

- ***Add protection standards*** to avoid the undue fragmentation of forest resources and productive forestland.
- ***Promote the maintenance of lot sizes large enough*** for forest management and enrollment in the Current Use Program.
- ***Include specific standards*** that govern the subdivision of productive or priority forestland (if mapped) by requiring the preparation of a forest management plan. In this case, the purpose of the plan is to ensure that the layout of the subdivided parcels will not unduly limit the opportunity for ongoing management. (Limitations can happen when management areas are fragmented, or conflicts arise between management activities and residential development.)
- ***Use road or driveway length as a trigger for "major" subdivision review.*** The length of a road or driveway serving a subdivided parcel, which can be an indication of encroachment into an undeveloped forest block, can be used to trigger the specific type of subdivision review undertaken.
- ***Require disclosure of subsequent development plans to foster better planning.*** At a minimum, this should include a simple written statement of proposed development plans, if any (e.g., the parcel is to be conveyed as a woodlot). For more complex, phased subdivisions, the submission of a master plan may be required, as a way to get a general sense of how the land will be developed over time. A master plan at a minimum should identify mapped conservation, forest and open space areas to be considered in future phases of development, based on best available information. The town of Warren, as discussed below, has this provision in the subdivision section of its unified bylaw (Article 7.2(H)(3)).
- ***Limit the amount of site clearing.*** Subdivision regulations can require the designation of a building envelope, and limit clearing to the area within the envelope, except as required for driveway/utility corridors. Clearing limits are also often specified on accompanying erosion control plans.

More Information

- **Subdivision and Parcelization Trend Information** for each Vermont town was compiled in an online database (reflecting data from 2003 and 2009 only) as part of a subdivision trends analysis by VNRC. The database includes information such as the number of large parcels in each town, the percentage of large parcels that have been subdivided, the percentage of those enrolled in the Current Use Program, and more. www.vnrc.org/subdivisionreport
- **Community Planning Toolbox: *Subdivision Regulations*** gives a general overview of this land use tool. http://vnrc.org/resources/community-planning-toolbox/tools/subdivision-regulations/
- **Community Planning Toolbox: *Conservation Developments*** summarizes this land use concept. http://vnrc.org/resources/community-planning-toolbox/tools/conservation-developments/
- **Land Use Planning and Implementation Manual, Topic Papers 18, *Open Space & Resource Protection Programs,* 19, *Open Space & Resource Protection Regulations* and 30, *Zoning Regulations.*** http://vpic.info/ImplementationManual.html

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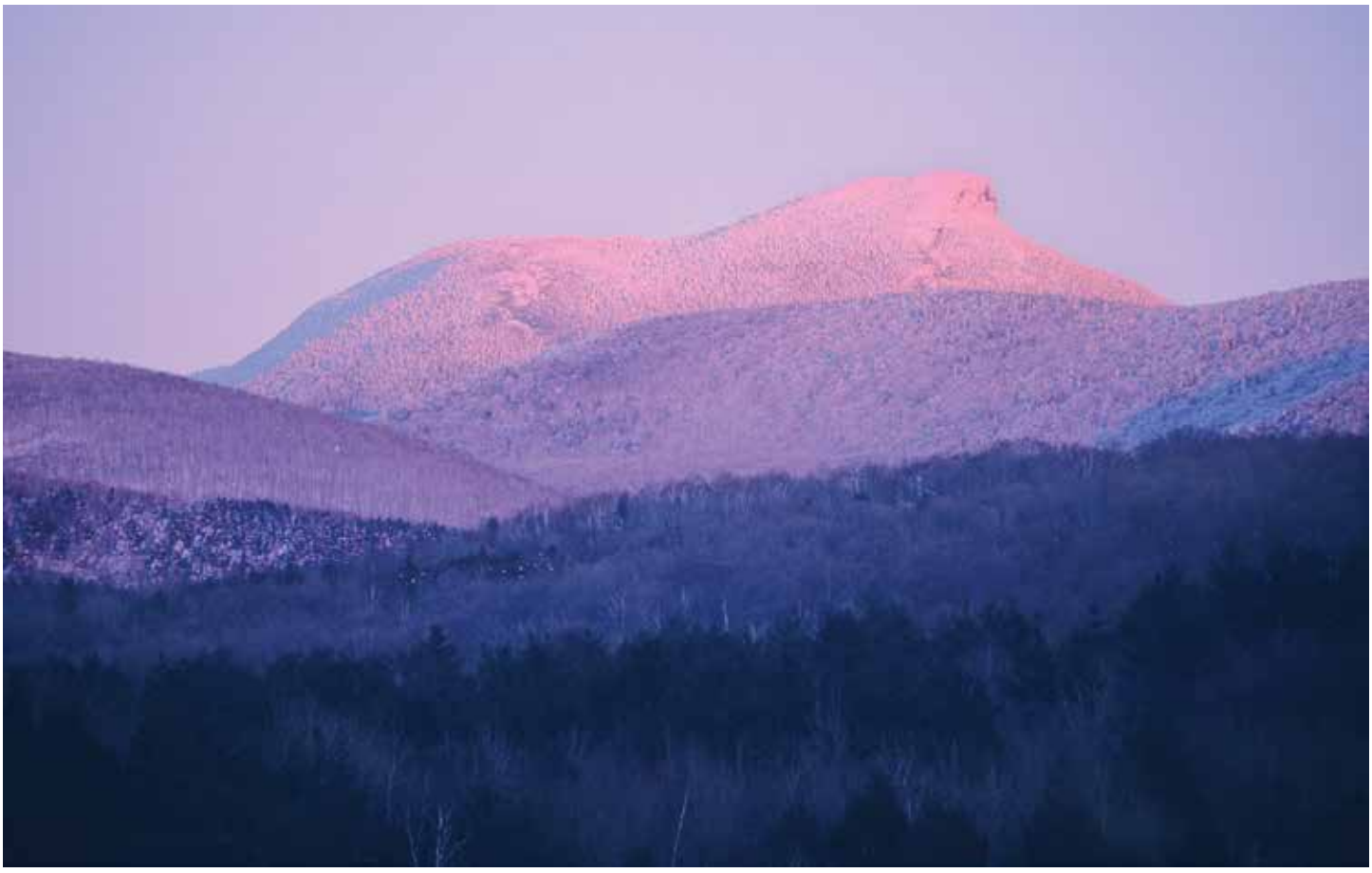
For examples of standards that achieve each of these goals, see *Chapter 11, Writing Standards for Development Review.*

Things to Consider

Review subdivisions through the zoning bylaw. Zoning bylaws and subdivision regulations are separate documents. While many communities have zoning bylaws, a number do not have subdivision regulations, and thus, dividing land in those communities does not require a formal review (though subdivision plats must still be recorded, under separate state statutes). A few towns regulate subdivisions under zoning, using the statutory definition of "land development," which can be a straightforward way to deal with keeping track of parcelization and recorded plats. This approach often reviews subdivisions by looking at basic qualitative standards (e.g. lot size, setbacks) through site plan review or administrative review by a zoning administrator. The challenge is that this approach typically includes few review standards, which makes it less useful for addressing specific natural resource concerns. Along with forest and conservation districts, a standalone subdivision regulation is one of the most powerful tools that communities can use to protect their landscape, forest economy, and wildlife habitat.

A Unified Development Bylaw is different than reviewing subdivisions via the zoning bylaw. Whereas a Unified Development Bylaw includes all of the elements of a stand-alone subdivision regulation as required by 24 V.S.A. §4418, this is not a requirement of subdivision review via the zoning bylaw.

Establish a stand-alone subdivision bylaw or a unified bylaw. Subdivision regulations can be turned into stand-alone regulations, or into a unified bylaw that contains zoning and subdivision in one document, and aligns review processes. Doing this addresses the absence of standards that can happen when subdivision review is treated as a part of zoning, since statute requires that certain standards be included in a stand-alone or unified subdivision bylaw. It also makes it easier to establish a phased review process (including an initial "sketch plan review" meeting), outline the necessary administrative procedures for plat filing that would help with long-term enforcement of any conditions for approval (as well as with municipal property records), and include more comprehensive review criteria and resource protection standards.



Wayne Fawbush

Case Study

Conservation Subdivisions: Warren, VT

The Town of Warren uses a form of "conservation subdivision design" – a method for promoting conservation by requiring creative development design – in the review of major subdivisions. Conservation subdivisions first emerged in the 1990s in Massachusetts, largely through the work of the Lincoln Institute of Land Policy and Randall Arendt, a well-known author and advocate for conservation planning and site design.

Under Warren's subdivision regulations, applicants are required to follow a design process that emphasizes the protection of "primary" and "secondary" conservation areas, as defined in the bylaws and identified during sketch plan review. This process is "intended to ensure compliance with the Warren Town Plan, and that maximum consideration is given to the identification and protection" of important areas when land is subdivided and buildings are sited. (page 83).

Warren has defined primary conservation areas – essentially "no build" areas – to include various resources: all land within its flood hazard and meadowland overlay districts, slopes with a gradient of 25% or more, and surface waters, wetlands and associated buffer areas required under the regulations. Secondary conservation areas – in which development encroachments must be minimized – include critical wildlife habitat and wildlife corridors, groundwater source protection areas, slopes from 15% to 25%, designated historic and archaeological sites, and prominent ridgelines visible from public vantage points. These areas include much of the town's forestland. Specific methods to avoid or minimize adverse impacts are also identified in the regulations. The town is currently reviewing its priority conservation areas in relation to recent natural resource inventories.

The subdivision design process is outlined in Table 7.1 of the regulations, and described in more detail in Section 7.3. The steps to be taken (and documented by applicants) are, in order:

1. ***Identify conservation areas*** – delineate the boundaries of all primary and secondary conservation areas. These areas are to be conserved under a conservation plan, and designated as open space.
2. ***Identify development areas*** – exclude primary conservation areas and limit, to the maximum extent feasible, adverse impacts to secondary conservation areas. Development density within these areas is to be determined based on the zoning district requirements in which the subdivision is located. Planned unit development provisions, including density bonuses for more clustered development and open space protection, may also apply.
3. ***Identify building sites, envelopes*** – within designated development areas, to include building footprints and/or building envelopes in which principal and accessory structures and parking areas must be located.
4. ***Lay out roads, driveways and utilities*** – to connect identified building sites within designated development areas, and avoid adverse impacts to and the fragmentation of designated conservation areas.
5. ***Identify proposed lot boundaries*** – within designated development areas, to include building sites or envelopes, and to avoid or minimize impacts to primary and secondary conservation areas.

This process – initially used to conserve large tracts of farmland – can be readily adapted to conserve a community's forest resources. It results in a much more site sensitive design than the standard cookie cutter process of defining building lots based on zoning lot size and road frontage requirements. Using this process and related open space standards, conservation areas are included and identified on the plat as protected open space – ideally as separately conserved lots held in common or single ownership.

Warren's regulations are available on the town's website: http://www.warrenvt.org/general/ordinances.htm.

For more information, illustrations and example language, the following resources, authored in whole or part by Randall Arendt, are especially helpful:

Dealing with Change in the Connecticut River Valley: A Design Manual for Conservation and Development, 1989: Cambridge: Lincoln Institute of Land Policy.

Rural by Design: Maintaining Small Town Character, 1994, Chicago: Planners' Press.

Conservation Design for Subdivisions: A Practical Guide for Creating Open Space Networks, 1996, Washington DC: Island Press.

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16. Clustering and Planned Unit Development

Overview

Conventional zoning typically doesn't allow for much flexibility in site planning and subdivision design. As a result, minimum zoning district lot size and frontage requirements generally govern the pattern of subdivision and development, with little consideration given to site conditions or natural resource protection. Planned unit development (PUD) provisions in local bylaws offer the needed flexibility, by allowing for modifications of underlying zoning district requirements (though modifications are subject to limits or conditions specified under the regulations). This flexibility makes it possible to achieve better, more creative designs than would be possible under a strict application of the zoning requirements. PUD standards commonly apply to larger, planned development – for example, master planned industrial parks, college campuses and traditional neighborhood or transit-oriented mixed use developments.

In more rural settings, PUDs have been effectively adapted and used to promote open space and resource conservation. Common modifications to underlying zoning in this context include smaller building lots, and reduced road frontage and setback distances. This creates more concentrated, clustered development and conserves open space – for farming, forestry, wildlife habitat, or to protect other resource values. This type of PUD is often referred to as an "open space" or "conservation" PUD and will often include the following:

- **Clustering** involves concentrating development on smaller lots that are smaller than typical – or otherwise allowed – in the district, encompassing a portion of the parcel that excludes important resource areas. This can help reduce the encroachment of lots, roads and other infrastructure into forest blocks or habitat areas, which can then be retained as open, undeveloped land. Conserving open space, while also ensuring that privacy can be maintained within clustered subdivisions, can be achieved with creative subdivision design. On its own, clustering does not increase the overall density of development on the parcel; however density bonuses are often provided as an incentive for good design that also protects a significant amount of open space.
- **Conservation subdivision design** is similar to clustering, but follows a specific design process to determine where building lots should go. A key part of this process is to first identify natural resources to be protected (as defined in the regulations), and to include these in open space or conserved parcels that will not be developed. Then, building lots are sited and clustered, along with roads and supporting infrastructure, outside of conserved areas. This approach allows building parcels to be selected with sensitivity to important natural resources, without a reduction in the number of units that a landowner could develop under conventional zoning. (For more on conservation subdivision design, see *Chapter 15, Subdivision Regulations.*)

Using PUDs to Protect Forest Resources

Statute allows municipalities to require planned unit development in certain districts (for example, for all subdivisions or developments in a forest or conservation zoning district) or for development over a certain scale (for example, one that involves more than 10 or 20 acres of land, or 5 to 10 new parcels). The standards of a PUD – including minimum open space, lot configuration, siting and access requirements – can protect the integrity of large forest blocks and wildlife habitat when residential development is allowed in these areas. PUD provisions are popular in Vermont for this reason: they allow the landowner to develop a portion of the land, often at the same overall density allowed in the underlying zoning district, but the open space or conservation standards also conserve land and important resources.

PUDs are not only useful for large developments. In a district with a relatively large lot area requirement (e.g. 25 acres), a PUD can allow for the creation of two or three relatively small (e.g. one acre) lots, thereby keeping the bulk of the pre-development parcel in common ownership for resource management. Likewise, PUD provisions may allow modification of other dimensional standards, such as large frontage requirements, in order to concentrate development within a minor portion of the property.

Good PUD design is essential for keeping forest blocks

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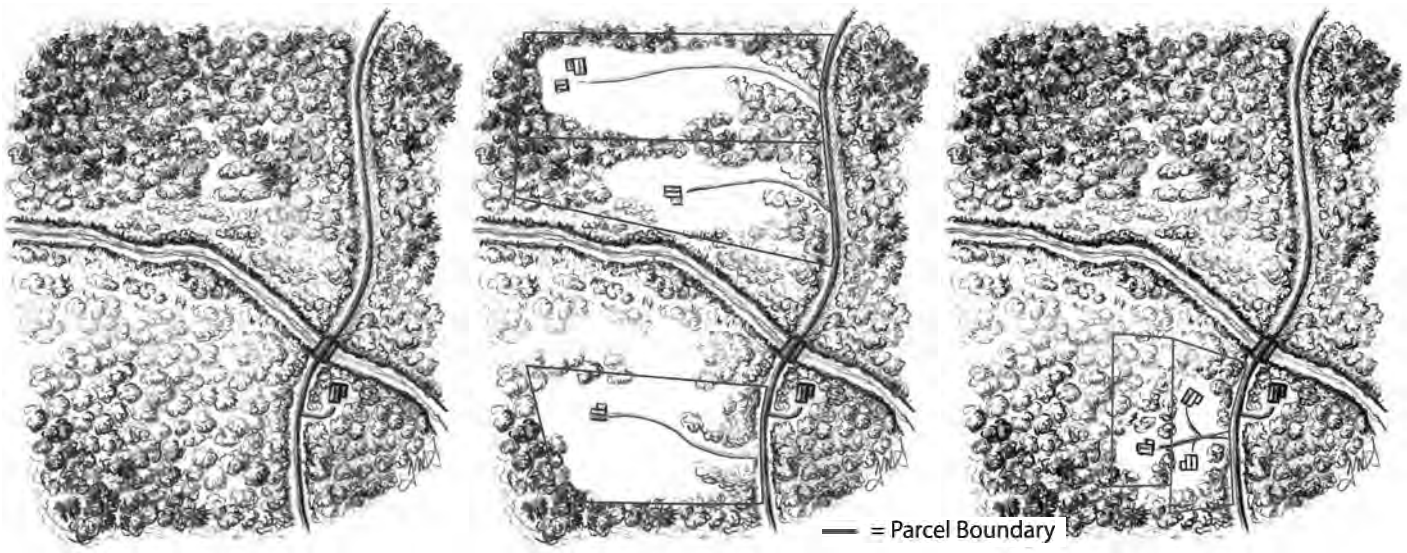
Clustered Development



Parcel before development.

Parcel developed with conventional road frontages and setbacks results in "spaghetti lots" that reduce forest cover.

Parcel with clustered development, minimizing forest fragmentation while preserving privacy and the functionality of remaining forestland.

intact. Many PUDs have successfully preserved open space that is visually appealing, but in a configuration that has limited usefulness for forestry, farming, or wildlife habitat. The result? "Cluster sprawl." When done well, however, PUDs can be configured to retain large, contiguous forested areas for timber and wildlife management and outdoor recreation. For example, open space standards could require that retained forest parcels be large enough to enroll in the state's Current Use Program (25 acres or more), and be accessible for forest management. There could also be a provision – enacted through the layout of the subdivided lots, and the placement of houses – to leave log landing areas available in locations where they will have minimal impact on future residential development.

"Open space" or "conservation" PUD provisions typically:

- ***Authorize density bonuses as an incentive*** for the use of PUDs to conserve open space, or to encourage open space protection above what is minimally required under the regulations. For example, if a developer promises to set aside a certain percentage of forestland on a parcel to be subdivided then, with clustering, he or she may be able to build more housing units than the zoning regulations would otherwise allow. Significant density bonuses may be necessary to encourage PUDs if they aren't required under the bylaws, especially in zoning districts with modest or high development density standards.
- ***Encourage (or require) the protection of a minimum amount of open space*** (e.g. 50% or more of the total acreage) for purposes identified in the regulations.
- ***Include related provisions*** for the long-term protection and management of designated open space in relation to its intended use.
- ***Require additional development review*** that addresses any requested modifications of the regulations, and associated PUD standards for siting, layout and open space protection.

What is Open Space?

"Open space" is more than just sweeping vistas. It is a term used to describe land that is not occupied by structures, buildings, roads rights-of-way, and parking lots, and which has been designated, either through an easement or permit restriction, to remain undeveloped. Open space may include farm fields, parks, and blocks of forest.

Statutory Authority

24 V.S.A. §4417

The Vermont Planning and Development Act allows (but does not require) municipalities to adopt zoning bylaws

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More Information

Land Use Planning and Implementation Manual, Topic Papers 2, *Planned Unit Development,* 18, *Open Space & Resource Protection Programs,* 19, *Open Space & Resource Protection Regulations* and 30, *Zoning Regulations.* http://vpic.info/ImplementationManual.html

that include PUD provisions, which "permit flexibility in the application of land development regulations," as discussed above (24 V.S.A. §4417(a)). The statute lists a number of purposes that can be achieved under planned unit development. Among them is "the conservation of open space features recognized as worthy of conservation in the municipal plan and bylaws, such as the preservation of agricultural land, forestland, trails, and other recreational resources, critical and sensitive natural areas, scenic resources, and protection from natural hazards" (24 V.S.A. §4417(a)(5)). PUD provisions under the regulations must include provisions for "the amount, location and proposed use of open space (24 V.S.A. §4417(b)(4)(C))." PUDs may involve single or multiple properties and landowners. With regard to open space, they may also include:

- **Standards for the reservation or dedication of open space and common land** for the use or benefit of residents within the development;
- **Provisions for the local acceptance of land or interests in land** that are dedicated by the developer for public use;
- **Requirements that the applicant establish an organization or trust** for the ownership and long-term stewardship of commonly held open land.

Implementation

Municipal Plan

Articulate municipal plan goals and objectives related to natural resource protection. Start by making sure that the municipal plan clearly states what the community wishes to achieve with regard to resource protection. Plan goals and objectives can then be used to guide the construction of your PUD standards. If the plan does not adequately address community objectives, it's best to start by updating the municipal plan, since zoning and subdivision bylaws – and specifically planned unit developments – must conform to the municipal plan.

Consider using resource maps or supporting resource conservation or open space plans. Identifying and mapping contiguous or linked open space and resource conservation areas across the landscape, without regard to property boundaries – can show the location and extent of large, connected blocks of forestland, wildlife habitat and travel corridors. These maps can provide the big picture guidance needed to maintain and set aside contiguous, undeveloped resource areas (as land continues to be subdivided and developed) and avoid "cluster sprawl." This mapping and analysis can be included in the update of the municipal plan, but can also be addressed in a more detailed, supporting "open space" or "forest resource" plan for the community. (See *Chapter 4, Conservation Planning.*)

Identify planned unit development as an implementation strategy. PUDs – or clustering to conserve resources and preserve open space – should be identified in the plan's implementation section as a recommended resource protection strategy. This way, it can be considered in future zoning and subdivision bylaw updates.

Zoning Bylaw

Draft a purpose statement. PUDs must include a statement of purpose – a short paragraph that reflects how the PUD conforms to the municipal plan. An "Open Space PUD" purpose statement should address objectives specific to forestry, conservation, wildlife, and other resources or values identified in the plan for protection. The objectives a community wishes to achieve through planned unit development provisions in the regulations – for example to preserve large blocks of forestland, and the ecological and economic values of working forests – should be articulated here.

Decide whether open space or conservation PUDs will be required or optional. Zoning bylaws often identify several types of planned unit development, and differentiate which types are allowed within each zoning district. For open space PUDs, it's important to consider whether they should be allowed or required for:

- **Use in certain zoning districts** – for example, in a forest or conservation district where open space protection is a clearly identified community priority, but residential development is also allowed; or for
- **Subdivisions that involve large tracts of undeveloped land** (e.g. 20 or more acres) especially in relation to underlying district lot size requirements.

If planned unit development is required, the developer must address and meet related PUD standards for clustering and open space retention. If mandatory planned unit development is not a good fit in your community, strong incentives (such as density bonuses) should be considered to promote creative planned unit developments wherever appropriate – especially to combat more conventional "cookie-cutter" subdivision and site designs.

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Articulate the standards and techniques to be used to achieve the purpose of the district. PUD standards should be consistent with and build upon existing review standards. They should also be based on and conform to related objectives found in the municipal plan and supporting open space or resource conservation plans. It's important to note that PUD provisions – including modifications to underlying zoning district requirements – are designed to be applied in association with conditional use review (e.g. for single lot, mixed use development) or, more commonly for open space and forest protection, with subdivision review (the creation of new lots).

PUD provisions typically mandate or provide guidance on the type, amount and configuration of land to be retained as open space, and how new building lots or sites should be laid out and clustered to maximize open land, to protect resources identified on the site, and to limit the extent of supporting development roads and infrastructure. Specific requirements – for example the minimum amount of open land to be conserved – should be clearly stated in the regulations (as "shalls") but, in order to allow for flexibility and creativity, some guiding "mays" could also be appropriate – especially for incentives such as density bonuses for protections that go beyond minimum requirements, or for the dedication of private land for ownership or use.

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Other considerations include allowing for multi-parcel PUDs (especially useful to protect contiguous open land), varying the allowed density or intensity of use within a PUD, allowing additional uses only within a PUD (as another potential incentive), and associated legal documentation regarding the ownership and long-term management of commonly held land and resources. Given the range of options and possibilities, it's often helpful to review several examples, and get some professional assistance in drafting specific PUD standards.

Since PUDs are reviewed in association with subdivision or conditional use review, it is not necessary to specify a separate review process for planned unit development. It is important to identify the type of review – whether conditional use or subdivision – and the application information necessary to make findings under PUD standards. This generally involves additional application materials and design considerations – for example, identifying designated open space prior to delineating building lot lines and road rights-of-way. PUD application requirements and review processes should not be significantly more onerous than standard application and review requirements – especially if PUDs are optional, rather than required. It's especially important to build community and landowner support for creative development design in order to avoid unnecessary or redundant reviews.

Things to Consider

Be aware of smart growth in inappropriate places. A PUD can help minimize the impact of development through careful design that places development in the areas where it will have the lowest impact on natural resources. However, even when development is clustered, the location of the PUD itself is an important consideration – a clustered PUD five miles outside of town in the middle of a forest block may not be a good project. If planned unit development is considered outside of the larger "landscape" context of resource conservation and open space protection, it will not adequately address the adverse effects of incremental development. PUDs should be allowed close to existing development; they are not necessarily appropriate in more remote and high elevation zoning districts with limited access and development potential. Another important thing to remember about PUDs is that although they should be complementary to zoning, PUD provisions alone are no substitute for solid underlying zoning district regulations that are crafted to fit the context and purpose of that district. They are also not a substitute for other resource-specific protection standards included in the regulations.

Maintain connections. As discussed above, it's important to consider the location of both building lots and designated open space in relation to contiguous areas on adjoining properties. This helps to ensure that important connections to both the built and natural environment are maintained across political boundaries and property lines.

Designate conserved open space within a planned unit development in a way that supports its intended purpose and use. "Open space" can mean many things – from large, undeveloped tracts of forestland to shared greens or yard areas. In PUD standards it is necessary to define open space in terms of the specific resources that must be identified and conserved by the applicant, and, depending on the resources, to offer some flexibility on how these areas are delineated and linked. For example, the amount of land needed to conserve a threatened plant community may be much different than the amount needed to maintain forestland enrollment in local or state tax stabilization programs.

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17. Road and Trail Policies

Overview

Access to nature is an integral part of life in Vermont, and our state is home to some of the best trail networks in the country. Many of these networks provide access to undeveloped forestland. Well-planned, sited and managed road and trail networks contribute to the conservation of forest resources by providing access for timber and wildlife management, restoring degraded areas, guiding users away from sensitive habitats, limiting impacts on wildlife, and getting people into the woods to appreciate firsthand a community's forest resources. Poorly sited roads and trails have the opposite effect. They can fragment forestland, limit wildlife movement, channel stormwater runoff, and create breaks in forest cover that serve as pathways for invasive species. New roads also open up more land for development, which further fragments forests.

The effects of roads on forest fragmentation are recognized in state definitions of "core forest" and "contiguous forest habitat":

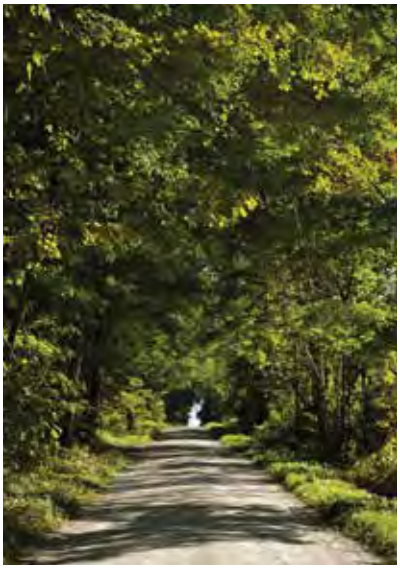
Core forest includes forest cover located more than 100 meters from a building, structure, road, or driveway and more than 100 meters in from the forest edge boundary.

Contiguous forest habitat is an area of forested land with either no roads or low densities of Class 3 or 4 roads and little or no human development (buildings, parking areas, lawns, gravel pits).

Municipalities can adopt policies and regulations that guide how roads and trails are developed and managed. Road and trail policies can help lighten budget pressures by limiting the upgrading of existing roads, and the development and acquisition of new roads in previously inaccessible areas. New and upgraded roads increase road maintenance costs, and can require the extension of emergency services and school bussing routes to serve these areas.

Local road and trail policies, ordinances, and regulations can be used in a variety of ways to:

- Require that new development has frontage on or access to town roads that are currently maintained for year-round use (Class 3 or higher).
- Develop a policy that the municipality shall not extend road maintenance services to private roads and shall not reclassify private roads as town roads.
- Limit the uses that can be accessed from Class 4 roads (that are maintained only for seasonal use) to those uses that do not require year-round vehicular access (e.g., forestry and wildlife management, outdoor recreation, seasonal camps).
- Restrict or prohibit the upgrade of existing Class 4 roads and legal trails to serve new development to avoid additional long-term maintenance costs, and in order to limit development and public access (especially vehicle access) in more remote areas of town that currently require no municipal services (roads, emergency services, school bussing, etc.).
- Downgrade Class 4 roads to legal trails, to eliminate road maintenance costs but retain town rights-of-way for public access and recreational use.
- Discourage extensive private road development by requiring that the costs of road construction and ongoing maintenance be borne by the developer and abutting landowners, or by prohibiting new road construction in certain districts (possibly with the exception of roads and trails for recreation or forest management).
- Guide or regulate the design, location and extent of new road and trail development, especially within conservation and resource areas, to minimize resource fragmentation and associated impacts from road or trail development and use. Road design standards should emphasize grades (prohibiting road development on steep slopes, for example), stormwater runoff that keeps water from flowing directly into streams, and adequately sized bridges and culverts to ensure that the roads serving development can be accessed by emergency



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services.
- Regulate the use of town rights-of-way by recreational vehicles (e.g., ATVs, off-road vehicles and snowmobiles).
- Preserve or provide access to forestland (including logging roads and landings) as needed for sustainable wildlife and forest resource management.
- Maintain or enhance wildlife movement by: 1) limiting vehicle speeds (e.g. by maintaining a road as gravel rather than paved), which maintains rural character while benefitting wildlife movement, 2) minimizing guardrails or steep swales 3) limiting traffic volume by maintaining low development densities on land served by specific roads, and 4) appropriately sizing culverts for aquatic organism passage as well as movement of terrestrial animals.
- Minimizing the spread of invasive species through careful mowing and maintenance policies.

Statutory Authority

Fragmentation issues related to roads and trails can be managed through a variety of policies or guidelines that are advisory in nature, as well as through locally adopted highway ordinances, zoning and subdivision regulations. Not surprisingly, there are several sections of statute that govern how communities may regulate roads and trails – found mainly under Title 19 (Highways) and Title 24 (Planning and Development). These are explained in more detail below.

Implementation

Municipal Plan

The town plan's goals, policies, and transportation map provide the basis for local road policies. To help reduce fragmentation, municipal plans can:

- ***Provide general policy support for actions related to roads.*** Include municipal plan language that addresses issues of forest fragmentation caused by road and utility extensions, land subdivision and development. Related policies could call for limiting or managing road and utility extensions within core forest areas, updating road layout requirements in the subdivision regulations, or articulating how (and if) the municipality will accept private roads (if they choose, municipalities may choose not to accept any new private roads).
- ***Articulate the community's approach to Class 4 roads, legal trails, and logging roads.*** Clearly articulate the community's approach to Class 4 roads and legal trails in the municipal plan, and in related ordinances and bylaws. For example, limit the use and upgrade of Class 4 roads to access new development, and downgrade certain Class 4 roads to legal trails for public recreational use. A plan policy stating that "trails will not be reclassified and upgraded to public roads," implemented through local ordinances and land use regulations, makes surrounding lands less vulnerable to development. Similarly, to prevent forest fragmentation and maintain the economic viability of an area for forestry, it is within a municipality's power, under subdivision or zoning bylaws, to prohibit the upgrade of old logging roads to serve new development.

Though it may seem to go without saying, it is important to design road policies with the public interest in mind. What does this mean? In general, development of roads in remote locations offers limited public benefit; in fact, these roads can be harmful to the public interest if acceptance of these roads increases public expense (e.g. maintenance costs) beyond the tax revenue collected from the newly served properties. When thinking about where roads should (and shouldn't) go, communities should work to create integrated transportation policies that balance access and mobility goals with recreation, land use, and conservation policies.

Zoning and Subdivision Regulations

A variety of approaches can be taken in a zoning bylaw to manage roads in ways that reduce fragmentation:

- ***Regulate road access*** (19 V.S.A. §1111): Statute requires the Selectboard to regulate access to and work within town road rights-of-way, including the issuance of highway access (curb cut) permits in conformance with the municipal plan and local land use regulations. Many highway policies or ordinances – and associated driveway and development road standards – are adopted, at least initially, for this purpose. The same statutory requirements also generally apply to the state, for access onto state highways. Municipalities and the state must allow for reasonable access, but are allowed to restrict the number and location of access points for new driveways and development roads. This can be used to reduce fragmentation.
- ***Frontage requirements and the creation of new lots*** (24 V.S.A. §4412): This provision was originally established in statute and zoning as a "grandfathering" clause to preserve access to preexisting lots with no road frontage. However, it gives the planning commission or development review board the authority to regulate access to such lots via private easements or rights-of-way under standards included in zoning or subdivision regulations. This offers some oversight over road or driveway development, while also protecting the interests of local property owners. The downside is that it can lead to the creation of long driveways

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and, without additional limits, the creation of new subdivisions served by development roads. Consider adopting frontage standards under local regulations that require all newly subdivided lots within specified districts to have frontage on existing public roads (which prevents the creation of interior lots requiring long, fragmenting driveways). Frontage standards can also specify that Class 4 roads cannot be used to meet frontage requirements. Development requiring year-round access should be required to have frontage on or direct access to a Class 1, 2 or 3 road or state highway. State law, as interpreted by the Vermont Supreme Court, also bars the use of legal trails for road frontage. Clarifying this in the zoning bylaw is a good idea.

- ***Guide road layout in subdivision regulations*** (24 V.S.A. §4418): Subdivision regulations adopted by a municipality to implement its plan must include both standards for the design and layout of roads, and standards for the protection of natural resources and open space. Increasingly, subdivision regulations are being crafted to specifically address the impacts of new road development on resources and open space, including wildlife habitat and forestland. Subdivision standards can also be used to preserve access to upland forests, including logging roads and landings, for ongoing forest resource management and, if the municipality chooses, to prevent the conversion and use of old logging roads to access new subdivisions and development.
- ***Customize road standards by zoning district:*** In districts at risk of forest fragmentation (especially those likely to be impacted by incremental development), the town should limit the encroachment of driveways into unfragmented forest areas. For example, this could be accomplished by requiring that driveways over a certain length be subject to conditional use review, by limiting driveway length, and/or by prohibiting new development roads within these districts.
- ***Choose whether and how to accept private roads*** (19 V.S.A. Ch. 7; 24 V.S.A. §4463): The Selectboard is authorized by statute, but not required, to accept private roads, including "development roads" created in the process of land subdivision. Every road or highway shown on a recorded subdivision plat is deemed a private road until it has formally been accepted by the municipality as a public road, by ordinance or resolution. Private roads must be maintained by abutting landowners, which may serve as a disincentive for extensive new road development, especially in hard to reach places. The Selectboard can develop a policy outlining the conditions under which it will (and will not) accept private roads.
- ***Provide for timber access*** (19 V.S.A. §§ 923, 958): The Selectboard has the authority to lay out a right-of-way through the land of any person so that lumber, wood, or other materials may be removed. The Selectboard must follow certain procedures, including notification requirements (19 V.S.A. §923).
- ***Road reclassification and discontinuance*** (19 V.S.A. Ch. 7): This section of statute describes a Selectboard's authority to lay out, reclassify or discontinue ("throw up") a town road – for example to upgrade a Class 4 to a Class 3 road, to reclassify it as a legal trail, or to discontinue it all together. Section 708 links reclassification to the community's goals and municipal plan, stating: "In considering whether to reclassify a Class 4 highway to Class 3, consideration may be given as to whether the increased traffic and development potential likely to result from the reclassification is desirable or is in accordance with the town plan." Downgrading a Class 4 road to a legal trail maintains the right-of-way for public use – e.g., as a recreational trail – but eliminates the need to maintain it for vehicular access, which may limit use impacts on forest and wildlife resources.

Jake Brown/VNRC

- ***Trails*** (23 V.S.A. Ch. 29): Most communities do not currently regulate public or private trail development under their land use regulations, except as may be required within mapped flood hazard areas, in riparian buffers, or if trailhead parking is proposed – but state regulations, including Act 250 review, may apply to more extensive trail development. Some communities, such as Underhill, are adopting guidelines for trail development in part to protect natural resources, including significant wildlife habitat. Federal standards apply to the development of trails on federal land, including the Green Mountain National Forest. (Note: trails built with federal funds on any ownership require adherence to some level of federal standards.) The Vermont Agency of Natural Resources is responsible for general oversight of the Vermont Trail System under an adopted state trail plan. Trail organizations, such as the Green Mountain Club and the Vermont Association of Snowmobile Travelers (VAST) also have standards for trail siting, design and maintenance.

There are also state statutes in effect under Title 19 (Highways) and Title 23 (Motor Vehicles) that govern the operation of snowmobiles and ATVs on public highways and private land, and give municipalities the authority to adopt ordinances that regulate the use of motor vehicles on town highways and the time, manner, and place of snowmobile and ATV operation. For example, snowmobiles cannot be operated on a public highway unless the highway has been open to snowmobiles and posted as such by the Selectboard.

Things to Consider

Involve the Selectboard and other key town officials early in the process. It's critical that the Selectboard, which has jurisdiction over local roads, is involved early in any discussion over road policies and standards, and that related standards under zoning and subdivision regulations are consistent with those adopted by the Selectboard under local road policies and ordinances. It's also important to include emergency service providers — such as the local fire chief, emergency management director, or emergency coordinator — when any road is being developed or upgraded to provide access to development; this helps evaluate whether emergency access is possible.

Determine how land use policies affect road needs. It's important to look at land use patterns allowed under current zoning and subdivision regulations. For instance, ask: Do large minimum lot sizes with large setbacks – often intended to preserve an area's "rural feel"– instead fragment the landscape, by requiring multiple, lengthy driveways? Clustering development on small lots while preserving larger tracts of undeveloped forestland — e.g., through Planned Unit Development (see *Chapter 16, Clustering and Planned Unit Development*) and Subdivision Design (see *Chapter 15, Subdivision Regulations*) — can reduce the amount of road infrastructure needed to serve development and thereby limit resource fragmentation.

Don't forget about driveway design. In addition to traditional driveway construction standards, consider standards under local zoning and subdivision regulations that also govern driveway location, to minimize resource fragmentation and adverse impacts to core forest and contiguous habitat areas, steep slopes, headwaters, wetlands and other conserved open space areas.

Consider long-term maintenance costs. Tight municipal budgets mean it is often a struggle to maintain existing local roads. If a town allows Class 4 roads to be used to access year-round development, it is likely that the Selectboard will eventually be asked to upgrade and maintain the road, as a public highway, for year-round use. Long-term maintenance costs should also be considered in accepting development roads as public highways.

Integrate wildlife considerations, as well as emergency management, into culvert sizing and other road design decisions. Culvert sizing is an important consideration for town planning. Culvert sizing has implications for flooding (and associated costs of repairing undersized infrastructure) as well as for aquatic organism passage and movement of terrestrial animals. With appropriate sized infrastructure, all of these goals can be accomplished at once.

Courtesy Vermont Fish & Wildlife Department

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More Information

Wildlife and Road Design

- **Land Use Planning and Implementation Manual, Topic Paper 25**, *Roads & Highways.* http://www.vpic.info/Publications/Reports/Implementation/Roads.pdf
- **Staying Connected: Transportation and Wildlife.** As part of the Staying Connected project, an international collaboration working to promote landscape connectivity across the Northern Appalachian and Acadian region, a website was developed to promote best practices and case studies for wildlife connectivity: (http://stayingconnectedinitiative.org/our-work/transportation-and-wildlife/). In addition to the information on this webpage, two documents discuss best practices for how roads can be designed to promote habitat connectivity.
  - **Vermont Transportation and Habitat Connectivity Guidance Document.** VTrans.
  - **Road Maintenance and Planning for Terrestrial Connectivity – Best Practices.** The Nature Conservancy.

Case Study

Road and Trail Policies: Enosburgh, VT and Underhill, VT

In districts at risk of forest fragmentation – especially those likely to be impacted by incremental development – road and trail policies can play an important role in limiting the encroachment of driveways into unfragmented forest. Below are examples of towns that have addressed this through their bylaws and ordinances.

Town of Enosburgh – Road Length Policies

The Town of Enosburgh recognized that roads over a certain length could fragment blocks of intact forest in their town, but wanted to avoid a blanket prohibition on long roads. Instead, the town decided to regulate roads over 800 feet only for those districts most likely to be affected by encroachment. They then developed different standards to fit each district's purpose:

- **Rural Residential District:** Roads over 800 feet are allowed but require conditional use review (Enosburgh Development Bylaw, p. 11).
- **Natural Resources Overlay District:** Roads over 800 feet are prohibited unless the development review board determines there is no other way to provide access to the property, or that a longer driveway actually helps avoid impacts on natural resources (p. 13).
- **Conservation District:** Roads over 800 feet are generally prohibited, and allowed only by variance (p. 12).

For more information, see the Enosburgh Development Bylaw.[1]

Town of Underhill – Trail Handbook

The Town of Underhill has adopted the *Underhill Trails Handbook,* prepared by the town's trail committee, to guide trail development on both public and private land. The guide is not regulatory. It instead provides a compilation of best management practices for trail development and maintenance. The handbook emphasizes "sustainable trail design" that minimizes the impacts of trail siting and use on the natural environment – "from the soils and tree roots underfoot to the fragile vegetation and special habitats that exist along the trail route to the wildlife that lives there." Some of the guide's recommendations include:

- Consulting with the state wildlife biologist and the town's conservation commission regarding trail routing, construction and use, to minimize impacts on plants and wildlife.
- Establishing buffers of sufficient width between trails and key wildlife habitat areas, including wetland and riparian areas, to protect wildlife and aquatic habitat and to allow for wildlife movement.
- Including sharp turns and sight distances of 75 to 100 feet in areas that are prone to wildlife interaction, to provide trail users and animals some reaction time in case of an encounter.
- Erecting small signs that ask trail users to stay on the designated trail in the vicinity of protected natural areas.

The guide also provides more specific information on trail design, permitting and development, working with landowners and landowner liability. A 2011 update of the handbook is available from the town.[2]

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18. Writing Clear Definitions

Overview

Unambiguous regulations are essential to identify, assess and mitigate the impacts of development on natural resources. For regulations to be clear, they must have two things: specific definitions of the resources to be protected; and clear standards to review and evaluate the impacts of development and the level of impact that will be allowed. This topic paper focuses on clear definitions. (See *Chapter 11, Writing Standards for Development Review* for more on this related topic.)

Zoning and subdivision regulations typically include a "definitions" section – but natural resources referenced in the text of the regulations often are not defined. For example, a 2011 review of zoning regulations found that, while 99% of towns refer to wildlife habitat in their town plans, only 2% of the towns with these regulations actually define "wildlife habitat."[1] Regardless of whether a resource is limited to a particular area (a wetland, for example) or presented more broadly (like a large forest block or a wildlife connectivity corridor), it needs to be clearly defined in the regulations. It also helps to identify regulated resources on maps referenced in the regulations.

JAM Golf: A Lesson in Specificity

A Vermont Supreme Court decision (In re: Appeal of JAM Golf, LLC, 2008 VT 110) underscored the importance of having clear language in town plans and bylaws. The court ruled that parts of the town's bylaw were "unenforceable" because they were too vague, and struck those provisions of the regulations. The court concluded that the standards that apply to resource protection must be clearly defined in the regulations. Otherwise, there is a risk that the applicant – and the natural resources to be protected – may be subject to the "unfettered discretion" of the reviewing body.

It's also been established through similar cases that municipal plan policies, including policies for conserving and protecting natural resources, must also be consistent, clear and unambiguous to be considered in local and state regulatory proceedings (e.g., in Act 250). Clear policy language is also easier to translate into local regulations.

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Clearly defining and delineating resources:

- Conveys which resources need to be considered in site planning and development review;
- Indicates where these resources are located;
- Provides clear guidance to both applicants and the review board;
- Provides clear guidance to the courts, enabling the regulations to withstand legal challenges that can stem from the use of vague terminology.

Text definitions, narrative descriptions, and referenced maps should provide sufficient information for both applicants and board members to identify and address resources that are likely to be present on a property. However, because of map scales and accuracy limitations, it's usually also necessary to verify natural resource information – including the type and extent of resources actually found on a particular site – through site planning by the applicant, and site visits by the review board.

Key characteristics of good definitions include:

- **Natural resources identified in zoning and subdivision regulations are clearly defined. To the greatest degree possible, natural resources should be indicated on resource maps referenced in the regulations.**
- **Resource maps that are updated on a regular basis, for example, as part of the update of the municipal plan.** Municipal plan maps, however, may not provide enough detail for regulatory (zoning) purposes. It is important that resource maps used in regulation be specific enough to inform development review, and to indicate where more site level information might be needed.
- **In order to be comprehensive, regulations must include both definitions for important features,**

and approaches (standards) for avoiding or mitigating the adverse impacts of development.

- **Since what is ecologically important differs from one place to another, boilerplate or standardized definitions need to be reviewed carefully for local appropriateness.** For example, towns in the Champlain Valley may have important habitat for grassland birds, while towns along the spine of the Green Mountains may have habitat for Bicknell's Thrush. Each town should tailor their definitions to address these local resources.

Where resources need to be identified more specifically on the ground, bylaws should include language that requires the applicant to conduct an inventory as part of site planning and assessment. Bylaw language should also call for the review board to conduct site visits. In addition, language should also be included that allows the review board to request additional information, possibly prepared by a qualified professional, as needed to determine project conformance with resource protection standards.

Statutory Authority

24 V.S.A. §4303

Vermont planning statutes do not specify that bylaws must include definitions. However, definitions are a common feature of regulations so that key terms and standards can be clearly interpreted and consistently applied over time by everyone involved in the review process. The importance of good bylaw definitions has clearly been established by the courts (see sidebar on the *JAM Golf* case on the previous page). In the absence of definitions, the courts look to "plain language" (e.g., dictionary definitions), which are not especially helpful in addressing natural resource protection. The Vermont Planning and Development Act (24 V.S.A. Chapter 117) comes with its own set of definitions (including a definition of "land development") that control for purposes of local land use regulation. Local bylaw definitions must be consistent with the statutory definitions, but can also be more specific or restrictive in their application.

Implementation

Municipal Plan

Use the municipal plan as a guide for developing definitions (and making other zoning bylaw updates). The municipal plan provides specific information about your community's natural resources and values; therefore use it as a guide to craft customized bylaw definitions to protect important community resources. The plan's goals, policies and actions identify both the types of resources to be protected, and the strategies recommended to protect them. (Remember, if the plan does not provide a basis for regulatory or non-regulatory action, it needs to be updated before action can be taken.) For consistency, some plans include a glossary of terms that can also be incorporated under bylaw definitions – and that also support use of the plan in regulatory proceedings such as Act 250.

Review municipal plan maps. Use existing municipal plan maps as a starting point for developing resource maps for inclusion or reference in the bylaws and for purposes of resource identification. Consider these questions: Do the municipal plan maps include resources that are not yet included in your town's bylaws? Will additional information, conservation planning, or inventories be needed before you can develop maps that can also be used for regulatory purposes?

Zoning and Subdivision Regulations

Review your zoning and subdivision regulations. Read through your regulations to identify terms that may need additional clarification or definition.

- In the zoning bylaw, check district purpose statements (the sections that explain what each district is trying to accomplish); application requirements for zoning permits, site plan or conditional use review; and associated development review standards – each of these sections may contain terms that need to be defined consistently in the bylaw's definition section.
- Within the subdivision regulations, check application requirements and standards for natural resource terms that may need to be defined.
- Review existing zoning and subdivision definitions to determine whether they are vague and in need of updating.

Add or update definitions. When it comes to natural resource definitions, a good place to start is to consider existing state program or statutory definitions – e.g., under 24 V.S.A. §4303 (planning statutes) and 10 V.S.A. §6001 (Act 250 definitions). This helps maintain consistency between local and state development review, to the benefit of

Natural resources terms found in Chapter 117 (planning statutes)	Natural resources terms found in Chapter 151 (Act 250)
Fluvial erosion	Endangered species
River	Necessary wildlife habitat
River corridor protection area	Productive forest soils
Wetland	Shoreline
	Stream

applicants. State definitions are also generally accepted by the courts.

Definitions should be the same in both zoning and subdivision regulations to avoid confusion and ensure that regulations are consistently applied. Some subdivision regulations address this by simply incorporating the definitions in the zoning bylaw by reference.

Vermont Department of Fish and Wildlife

A list of sample definitions related to forest resources and development are included at the end of this chapter.

Indicate on a map where important natural resources are located. Definitions and resource maps used in development review must be based on good information and good science. This often starts with a natural resources inventory, which is a key component of any conservation planning effort (see *Chapter 4, Conservation Planning*). Resource inventories do three things:

1) They more specifically identify and delineate generally mapped resources, often through field work;
2) They help illustrate why review and regulation are needed;
3) They inform the types of regulation that are most appropriate.

The time and expense of conducting inventories used as the basis for regulation can be a serious obstacle; however, there are a variety of options. For example:

- It is helpful to start by determining what resource mapping is already available. The Vermont Agency of Natural Resource's web-based "Vermont Natural Resources Atlas" and "BioFinder" can help with this (see the *Resources* section at the end of this guide for more information).
- It's also important to see what mapped data are available from your regional planning commission (RPC). The RPC may have conducted more detailed, resource-specific inventories (e.g. for river corridors) for use by its member communities, and in regional plan updates. The RPC is also a good source for maps produced using digitally mapped data and imagery available through the Vermont Center for Geographic Information (VCGI).
- Another option is "desktop mapping" which uses higher resolution aerial and satellite imagery (e.g., digital orthophotos developed for the state, by region) to identify where resources are located. This type of mapping is typically done by someone who is trained to interpret and integrate different types of imagery. Some digital map information is available from RPCs, state and federal agencies, and local universities, but at the town level, the services of a consultant may be needed.
- More detailed field inventories can be conducted by a professional (such as a forester, wildlife biologist or an ecologist), or even trained volunteers (a form of "citizen science"). There may be times when it is useful to clearly state if a certain professional qualification or skill is required for a service (for example, land surveys by volunteers would never be acceptable).

Courtesy Vermont Land Trust

Once resources are identified, they can be delineated on a map that is then included (as a resource overlay) or referenced (for purposes of resource identification) in the regulations. Remember, even once these maps have been developed, site-specific information may still need to be collected as part of the development review process.

Things to Consider

Writing clear definitions improves the development review process. Clear definitions aren't just about avoiding legal trouble. Defining what you mean by terms like "natural resources," "core forest blocks," and "significant wildlife habitat" also helps applicants and the local zoning administrator (ZA) and review board since clear definitions reduce ambiguity and subjectivity in the development review process. Involve your ZA and review board early in the process of developing definitions and standards.

Use caution when adapting definitions for local use. Many examples of definitions can be found in the bylaws of neighboring communities, and it can be tempting to cut and paste these into your community's regulations. However,

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any sample definitions should be evaluated very carefully before being adopted in your bylaw. Some generic definitions mention a broad range of resources – some of which may not even be present in your town. For example, the sample definition of "significant wildlife habitat" on page 72 includes nine different habitat types, but only seven of these may be present in your community. Work with the Vermont Department of Fish and Wildlife, your county forester, your regional planning commission, or a wildlife biologist to ensure that the definitions you are using a) make sense for the local environment and b) align with the purposes of your regulations.

Consider using state definitions for consistency. Aligning local with state program definitions (where appropriate) provides consistency, avoids confusion, and makes multi-jurisdictional reviews clearer for everyone involved. But make sure that state definitions are sufficient to meet local goals and objectives. If not, they should be adapted as needed for local use to be more inclusive or restrictive.

Reach out to local groups for assistance in developing definitions. Harness local knowledge to develop definitions that capture the characteristics of your community's natural resources. Community members — especially those with forest and wildlife expertise — can serve as resources for

Sample Definitions Related to Forest Resources and Development

The following definitions are provided as guidance for developing locally appropriate definitions that relate to forest and wildlife resources. These are samples only – there is no "one size fits all" definition. These definitions should be updated based on your location, community values, and after appropriate consultation with the town attorney and Vermont Agency of Natural Resources.

Sample Definitions

Contiguous Forest: An area of forestland comprised predominantly of one or more large parcels with either no roads or low densities of class 3 roads and little or no human development (buildings, parking areas, lawns, gravel pits, etc.)

Development (or building) Envelope: A specific area of a lot, delineated on a subdivision plat or site development plan, within which structures, parking and loading areas shall be located, and outside of which no structures, parking or loading areas shall be located. A building envelope shall be defined by required minimum setback and height distances, unless otherwise specified in these regulations. This also may be referred to as the "buildable area" of a lot.

Forest Fragmentation: The division or conversion of large tracts of contiguous forest or formerly contiguous forest into smaller pieces leaving remnant patches of forest that vary in size and isolation separated by non-forested lands or other vegetation and land-use types. Fragmentation can reduce the viability of forests for forest management, hinder ecological functions such as watershed protection, disrupt wildlife corridors, and render core habitat and other habitats unsuitable for certain species of plants and animals.

Habitat Block: An area of natural cover (forested, wetland, woodland, or old field) surrounded by roads, development, and agriculture. Habitat blocks may be large or small.

Forestry: The growing and harvesting of trees or timber under proper forest management for purposes other than their fruit. For the purposes of these regulations, the term "Forestry" shall also include the use of temporary processing equipment such as chippers and portable sawmills, which are used in association with harvesting operations, not exceeding a maximum of one year, and are removed from the site once harvesting operations are complete. This definition specifically excludes permanent sawmills, lumber yards and other similar facilities used for the processing, manufacturing and/or storage of wood and wood products.

Habitat Fragmentation: The division or conversion of tracts of significant wildlife habitat into smaller pieces leaving remnant patches of habitat that vary in size and isolation separated by developed or, otherwise non-forested lands. The reduction in size of significant wildlife habitat as a result of fragmentation can disrupt wildlife corridors and render core habitat and other habitats unsuitable for certain species of plants and animals.

(continued on page 72)

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defining, describing and mapping the community's natural resources. Conservation commissions, hunting and angling groups, youth organizations, science classes, and others can become part the "citizen science" that's incorporated in local regulations. Involving a broad group of community members is educational and can help build support for regulating the impacts of development on locally important resources.

Don't underestimate the importance of field checking your mapped data. It's important to remember that maps and inventories serve as indicators that a resource is, may be, or has been present in a proposed project area. This information should be field checked as part of the application and development review process to ensure that it's current and correct.

Mapping Resources

The Vermont Agency of Natural Resources has BioFinder and a Natural Resources Atlas that you can use to map natural resources. Additionally, RPCs often have detailed maps that can be helpful. Finally, remember that the Vermont Center for Geographic Information is another resource. (See *Resources* section.)

Sample Definitions Related to Forest Resources and Development

(continued from page 71)

Seasonal Camp: A building (or camper), not exceeding 720 square feet in building area nor 20 feet in building height, which has no permanent foundation and is not served by public utilities. A seasonal camp shall not be used as a primary or secondary residence, but rather as a temporary shelter for occasional use in connection with an outdoor recreational activity such as hunting or fishing. (Bennington)

Camp: Land or structures thereon, such as cabins, camper-trailers, shelters or tents greater than 150 square feet and less than 1,000 square feet, occupied and/or used on a temporary basis for no more than 5 months per year. Such structures, consistent with their short-term occupancy, shall not be connected to public utility services. (Waitsfield)

Productive Forestland: Land with soils that are capable of supporting the growth of trees and commercial forestry. Vermont's Current Use Program defines productive forest as forested areas on soils of Site Class I, II, or II (i.e., capable of growing 20 cubic feet of wood per acre per year or more).

Significant (or Sensitive) Wildlife Habitat: Those natural features that contribute to the survival and/or reproduction of the native wildlife of [town]. This shall include, but is not limited to, (1) deer wintering areas (i.e. deeryards); (2) habitat for rare, threatened and endangered species (state or federally listed); (3) concentrated black bear feeding habitat (mast stands); (4) riparian areas and surface waters; (5) wetlands and vernal pools; (6) wildlife travel corridors; (7) high elevation bird habitat (8) ledge, talus and cliff habitat; and (9) habitat identified by the Vermont Department of Fish and Wildlife as either significant wildlife habitat or necessary wildlife habitat in accordance with 10 V.S.A. § 6086(a)(8)(A).

Small Scale Processing of Raw Agricultural and Forest Products: A facility for the processing of raw agricultural or forestry products. This includes, but may not be limited to, sawmills and specialty food manufacturers. (Note: In defining "small scale processing," a municipality may wish to define "small scale" based on performance standards related to scale, intensity of use, and other impacts such as traffic.)

Wildlife Travel Corridor: A large area that permits the direct travel or spread of animals or plants from one area or region to another, either by the gradual spread of a species' population along the route or by the movement of individual members of the species. Generally, this area is likely to include several specific wildlife road crossing areas and is characterized by undeveloped forested corridors, including forest cover reaching to road rights-of-way, which serve to link large tracts of unfragmented forest habitat.

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Examples of Development Review Standards

Below you'll find examples of regulatory standards used by communities in Vermont. While these are intended as a guide for your community, *please note that they should not be cut and pasted into other regulations.* It is essential that, when developing standards for your community, you consider local circumstances, local goals, and the structure of your regulations before adopting this language.

In addition, it is highly advisable that you work with your town planner, regional planning commission, and/or town attorney before adapting and including any of these standards.

After you decide what language to include in your regulations, double check to ensure that any specific terms are defined in the "Definitions" section.

Examples of Purpose Statements: Zoning Districts

Sample Forest District Purpose Statements

Bennington, VT:
Forest District: "The purpose of the Forest District is to provide for commercial forestry uses and the protection of timber and wildlife resources in the Town's major forested areas. The land is generally characterized by steep grades, the absence of permanent structures for year-round or sustained use and the absence of improved roads."[1]

Waitsfield, VT:
Forest Reserve District: "Purpose. The Forest Reserve District is to protect significant forest resources and water supply watersheds at higher elevations and to limit development in areas with steep slopes, shallow soils, unique or fragile resources, headwater streams, wildlife habitat, and poor access to Town roads and community facilities and services."[2]

Sample Conservation District Purpose Statements

Bolton, VT:
Conservation District: "The purpose of the Conservation District is to protect Bolton's generally remote and inaccessible mountainous areas–which include significant headwaters and aquifer recharge areas, unique and fragile natural areas, critical wildlife habitat, and mountainsides and ridges characterized by shallow soils and steep slopes – from fragmentation, development, and undue environmental disturbance, while allowing for the continuation of traditional uses such as forestry and outdoor recreation."[3]

Enosburgh, VT:
Conservation District: "Protect pristine and sensitive areas that are primarily used for forestry and outdoor recreation from the adverse effects of development and growth. Allow other uses with conditions, including camps and other compatible recreation uses at a density these areas can support in accordance with the Town Plan. Maintain large tracts of forest, protect significant wildlife habitat, and ensure connectivity between habitats."[4]

Sample Wildlife and Natural Resources Overlay District Purpose Statements

Hartford, VT:
Wildlife Connector Overlay District: "To provide sufficient area for animals to move freely between conserved lands, undeveloped private lands, contiguous forest habitat, and other important habitat, land features, and natural communities within and beyond the boundaries of the Town in order to meet their necessary survival requirements."[5]

Enosburgh, VT:
Natural Resources Overlay District: "Protect the scenic and natural resource values of lands which are important for wildlife and wildlife habitat, and which are poorly suited for development because of their environmental constraints. Maintain large tracts of forest, protect significant wildlife habitat, and ensure connectivity between habitats. Land uses and development in this district will be planned and designed to be compatible with the surrounding characteristics of the landscape, to be harmonious with wildlife habitat and the species that depend on this habitat and recognize and protect the full range of vegetative and animal habitats and species in the Town. The district includes areas which have significant geologic features, unusual or important plant and animal qualities of scientific, ecological or educational interest, steep slopes, waterways and significant wildlife habitat."[6]

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Examples of Purpose Statements: Subdivision Regulations

Montpelier, VT: Montpelier has a unified bylaw, which includes both zoning and subdivision regulations. Its purpose statement for subdivision regulations is written as a single paragraph at the beginning of Article 4:

401.A. Purpose.
"The purpose of this article is to protect and provide for the public health, safety, and general welfare of the City of Montpelier by guiding future growth and orderly development through the control of land subdivision and development, the development or improvement of infrastructure to support it, the protection of natural and cultural resources, and the provision of public and private amenities in accordance with the Montpelier Municipal Plan and the Capital Budget and Program."[7]

Windsor, VT: In many subdivision regulations, the purpose "statement" is a list of multiple purposes that the subdivision seeks to achieve. For example, the town of Windsor's purpose statement contains the following list:

"SECTION 1.2 PURPOSE
(A) These regulations are adopted to further the following objectives:
(1) to guide future development in conformance
(2) with the *Windsor Town Plan*, the *Windsor Zoning Regulations* and all other municipal bylaws and regulations enacted to implement the plan;
(3) to further the purposes contained in the Act as set forth in §4302.
(4) to guide development in a manner that maintains the traditional settlement pattern of compact villages surrounded by an open, rural landscape;
(5) to ensure that land to be subdivided is of such character that it can be used safely for its intended purposes;
(6) to establish criteria for determining development capacity of land and to regulate the density and location of development in a manner that reflects traditional settlement patterns;
(7) to protect and provide for the public health, safety, and general welfare of the Town of Windsor;
(8) to promote the conservation of energy or to permit the utilization of renewable energy resources;
(9) to ensure that the rate of growth does not exceed the ability of the Town to provide public services and facilities, and that public facilities and services are available and will have sufficient capacity to serve any proposed subdivision;
(10) to preserve natural areas, critical habitat, scenic and historic resources and productive farm and forest land through the proper configuration of parcel boundaries and arrangement and location of development on parcels;
(11) to provide the most efficient relationship between land use and the circulation of pedestrian and vehicular traffic; and to avoid undue traffic congestion and overburdening of roads and highways;"[8]

Examples of Standards for Avoiding Fragmentation of Forest Resources and Productive Forestland

- "Lot lines, infrastructure, and road, driveway, and utility corridors shall be located to avoid the parcelization, fragmentation, isolation, or destruction of productive forest land" (be sure to define "productive forest land") (from a draft Vermont zoning bylaw)
- "The subdivision of forest land shall, to the extent practical, be configured to allow for ongoing forest management of the parcel after subdivision. Lot lines, building envelopes, access driveways or roads, and utility corridors shall be laid out to avoid unnecessary fragmentation of distinct timber stands, and to allow access for long-term forest management."[9] (Bolton)
- "Establishment of Development Envelopes. All lots shall have a designated development envelope, unless waived by the Commission in the case of small lots which would result in the dedication of significant tracts of open space. Development envelopes shall be designated to identify and limit the location of principal and accessory structures, parking areas, and associated site development (excluding road and utility rights-of-way or easements) on one or more portions of a lot. The size and shape of the development envelope shall at minimum be determined by district setback requirements unless otherwise specified in these regulations. The Planning Commission may require the identification of specific building footprints if, in their judgment, such information is required to meet the standards set forth in these regulations. Where the Planning Commission deems it appropriate to do so for the purposes of this Section 3.3, the Planning Commission may consider features of immediately adjacent properties that are relevant to the Planning Commission's evaluation of the proposed development envelope."[10] (Norwich)
- "Protection of Forest Resources. Subdivision boundaries, lot layout and development envelopes shall

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be located and configured to avoid adverse impacts to productive forest land, including large (50+ acres) tracts of forest, forest land contiguous to other large, undeveloped tracts that have either been protected through public or private land conservation initiatives or are subject to use vale appraisal contracts, and forest land that possesses unique or fragile features, including natural areas, critical wildlife habitat, wildlife travel corridors, and/or exceptional recreational resources. Methods for avoiding such adverse impacts include but may not be limited to the following:

(1) The subdivision of forest land shall, to the extent practical, be configured to allow for ongoing forest management of the parcel after subdivision. Lot boundaries and development envelopes should be laid out to avoid unnecessary fragmentation of distinct timber stands, and provision for forest management access should be a consideration of the final plan.

(2) The Planning Commission may require setbacks and buffers from adjacent forest land greater than the setbacks and buffers set forth in the Norwich Zoning Regulations to protect recreation areas, conserved open space, and critical wildlife habitat, and to avoid conflict between new residential development and existing forest management activities on land enrolled in the current use program."[11] (Norwich)

- "New driveways over 800 feet are prohibited in the [Conservation District."][12] (Enosburgh)

- "SECTION – 8.16 FOREST FRAGMENTATION.
Lot boundaries and development envelopes shall be located and configured to avoid the fragmentation of forestland in parcels greater than 50 acres. Methods for avoiding fragmentation include but may not be limited to the following:
A) Buildings and associated building envelopes shall be located in a fashion that reduces penetration into large forest blocks and building lots should be clustered to avoid the fragmentation of forestland parcels greater than 50 acres.
B) Roads, driveways and utility corridors shall be shared to the extent feasible and designed to avoid or limit forest fragmentation; and, where sites include linear features such as existing roads, tree lines, stone walls, and/or fence lines, shall follow these to minimize the fragmentation of forestland parcels.
C) The subdivision of forestland shall, to the extent feasible, be configured to allow for ongoing forest management of the parcel after subdivision. Lot boundaries and development envelopes should be laid out to avoid the unnecessary fragmentation of productive timber stands, and provision for forest management access should be a consideration of the final plan if active management is taking place."[13] (Enosburgh)

- "Lots specifically intended for long-term forest management should be of sufficient size to qualify for enrollment in state and/or municipal tax stabilization programs, and may be included as designated open space in accordance with section 7.4 [Open Space and Common Land]."[14] (Bolton)

- "Forestry activities shall meet all applicable state regulations, and shall, as a minimum standard, comply with Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont, published by the Vermont Department of Forests, Parks & Recreation."[15] (Waitsfield)

- "Disclosure of Subsequent Development Plans. Whenever a subdivider submits a proposal for development on a minor portion of a parcel, the applicant shall provide a general indication of the intended use of the remaining portion of the land in accordance with the following requirements:

(1) Such indication shall include at minimum a written description of the proposed type and intensity of use, access, and schedule for the development of the remainder of the parcel.
(2) For major subdivisions, including but not limited to phased and/or planned unit developments, a master plan for the entire parcel may be required in accordance with Section (8.4 – Open Space and Common Land Standards for PUDs), which identifies designated primary and secondary conservation areas and other common land and open space; proposed development areas; the general location of proposed infrastructure, including road, utility and green space corridors; and an estimate of the type, density, and timing of future development.
(3) Within the Forest Reserve District (table 2.1), the submission of a subdivision plan shall be required for forest management activities which include pre-development site preparation work for more than one building site, as defined under Table 2.1(E)(1). In accordance with district requirements, when a landowner fails to submit a pre-development plan, the Board may limit development to the

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non-impacted portion of the parcel, and direct the manner in which the site shall be restored or revegetated prior to development."[16] (Warren)

- "The designation of building envelopes to limit the location of structures, parking areas, and associated site improvements to one or more portions of a lot shall be required for all subdivided lots intended for subsequent development in the Forest and Conservation Districts, and may be required by the Development Review Board for such lots in other zoning districts, as deemed necessary to protect significant natural or cultural resources under Section 7.3. The size and shape of each building envelope shall be established in accordance with these regulations. The Board also may require the identification of specific building footprints if, in its judgment, such information is needed to determine conformance with these regulations."[17] (Bolton)
  - *Note: This approach can also be used to limit impacts in areas important for forest management and/or wildlife habitat.*

Sample Standards: Specific Conditional Use Standard

"Specific Conditional Use Standards for the Conservation and Natural Resources Overlay Districts. A biological impact assessment or report may be required as part of the application for Conditional Use.

1) For the Conservation and Natural Resources Overlay Districts, a biological impact report is required. Upon request of the applicant, the DRB may waive this requirement for projects it deems are designed in ways that have little or no adverse impact on Significant Wildlife Habitat and to minimize or avoid Fragmentation (See Section 8.16).
2) The study shall be prepared by a consultant or other party, qualified to assess the impact of development on biologic area. The applicant shall pay for the cost of the study. The study shall address the following:
   a) Total acres in the project area;
   b) Total acres of each habitat type in the project area;
   c) Location and total acreage of open space areas in the project area;
   d) Wildlife species known to be present or occurring on the site;
   e) Use patterns of wildlife habitat within the project area (movement corridors, feeding areas, etc);
   f) Critical connections or relationships with adjoining habitats outside the project area;
   g) Potential impacts of the proposed project on wildlife habitat and species;
   h) List of proposed mitigation methods for each wildlife habitat and species; and
   i) Any other information deemed necessary by the DRB to adequately assess the impact of the proposal on biological areas within or adjacent to the project site."[18] (Enosburgh)

Sample Standards: Promoting Wildlife Connectivity, Wildlife Habitat, and Wildlife Crossing Areas

Except where noted, the following standards are samples drafted by VNRC, and do not currently appear in a local bylaw. They represent the types of samples that can be included to address wildlife habitat and wildlife connectivity.

The following standards could be used as general standards, district standards, conditional use standards, or subdivision standards.

- ***Minimizing the impact of infrastructure:*** Development must be designed so that the extension of roads, driveways, and other infrastructure is minimized, with a preference for shared roads, driveways, and other infrastructure.

- ***Buffering specific resources:*** In the event that a distinct habitat supporting one or more specific species is located on the site (e.g., deer wintering area, mast stands, vernal pool), a buffer that is adequate to protect that habitat from the impacts of development and associated activities may be required as a condition of approval.

- ***Land management in areas important for wildlife:*** The portions of parcels located outside of development envelopes shall be managed to maintain forest cover and facilitate wildlife travel.

- ***Rare, threatened, and endangered species:*** Development shall avoid any adverse impacts to any rare, threatened or endangered plant or animal habitat or natural communities identified by the Vermont Department of Fish and Wildlife, or through site investigation.

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The following example is another way to write a standard that captures many of the ideas above. The way it is written presents a large idea (minimizing disruption and fragmentation of the wildlife crossing) and then lists the standards that development must meet to accomplish this. As written, it would be most suitable as a development standard in a wildlife or natural resources overlay district.

- Development shall be designed to minimize the disruption and fragmentation of the identified crossing to ensure that the development will not prevent the continued or potential future use by wildlife species identified as being dependent on the crossing to travel between areas of core habitat. To this end, development must:
  - be designed to minimize fragmentation through careful placement of individual structures and clustering of multiple structures as close to other development sites and disturbed areas as is practical given the development suitability of the site
  - be located within defined development envelopes to ensure that clearing, accessory structures and other site development is limited to a defined area;
  - be designed so that the extension of roads, driveways and infrastructure is minimized and, where practical, shared by multiple uses;
  - avoid any placement of fences, walls or substantial changes in grade that would disrupt the movement of wildlife within the crossing. Where fences are necessary, they should be no higher than 4.5 feet and should have at least 16 inches of clearance between the lowest horizontal part of the fence and the ground.

This standard, from the town of Norwich, is similar to the standard above but designed for use in **subdivision regulations**.

- (E) "Protection of Wildlife Habitat and Natural Areas. Subdivision boundaries, lot layout and Development Envelopes shall be located and configured to minimize adverse impacts on critical wildlife habitat, including travel corridors, and natural areas identified in the Norwich Town Plan, by the Vermont Department of Fish & Wildlife, or through site investigation. Methods for avoiding such adverse impacts include but may not be limited to the following:
  (1) Development envelopes shall be located to exclude identified natural areas and wildlife habitat, including deer wintering areas and other critical habitats. A buffer area of adequate size shall be established to ensure the protection of critical habitat.
  (2) To avoid the fragmentation of natural areas and wildlife habitat, including large tracts of forest land and undeveloped corridors serving as wildlife travel corridors between larger tracts of core habitat, the Commission may require the submission of a wildlife habitat assessment, prepared by a wildlife biologist or comparable professional, to identify the function and relative value of impacted habitat and provide recommended management strategies to maintain or enhance the those values and function. The Commission may also consult with Vermont Fish and Wildlife Department staff prior to issuing a decision.
  (3) Roads, driveways and utilities shall be designed to avoid the fragmentation of identified natural areas and wildlife habitat.
  (4) Identified natural areas and critical wildlife habitat should be designated as open space."[19] (Norwich)

The following standards are ways to **specify the location of development within a wildlife overlay district or wildlife corridor:**

- Development shall be located as far away from the center of the wildlife corridor as possible when a practical development site is available (e.g., when there is an option for development to be located towards the middle of the corridor, vs. at the edge, development must be placed toward the edge) unless the less disruptive option involves locating development in close proximity to other existing development in the corridor. Similarly, development shall be located to leave the greatest contiguous land area within the district as undisturbed forest to facilitate wildlife travel through the area.
- In the event that there is no land that is practical for development outside of a wildlife corridor, the development's design must minimize impacts on the continued viability and use of the corridor.

The following standard may be used to get additional information about the natural resources present on a particular parcel:

- The Development Review Board may require the applicant to obtain written review from the Vermont Department of Fish and Wildlife regarding the impact of the proposed development on the wildlife corridor and significant wildlife habitats.

Resources

General Resources for Planning

- ***Conserving Vermont's Natural Heritage: A Guide to Community-Based Planning for the Conservation of Vermont's Fish, Wildlife, and Biological Diversity.*** This publication contains valuable information about planning for natural resources at the landscape, natural community, and species levels. Download the PDF at http://www.vtfishandwildlife.com/library/maps/Community_Wildlife_Program/complete.pdf.

- **Community Planning Toolbox:** The Community Planning Toolbox introduces users to the issues, techniques and resources for smart growth planning and natural resources protection, and features case studies and sample tools that demonstrate how other communities have addressed similar challenges. The Toolbox is organized into five main sections: Land Use Planning in Vermont, Legal Issues in Planning, Issues, Tools, and Case Studies. Learn more at http://vnrc.org/resources/community-planning-toolbox/.

- **Vermont Planning Information Center (VPIC):** VPIC is a clearinghouse for planning commissions, review boards, municipal staff, and all others involved in land use planning and regulation in Vermont. Learn more at www.vpic.info.

- **Land Use Planning Implementation Manual:** This publication of the Vermont Land Use Education and Training Collaborative uses topic papers to comprehensively cover a variety of topics related to planning, smart growth and natural resources. Learn more at http://www.vpic.info/ImplementationManual.html.

Mapping and Inventory Tools

- **Natural Resources Atlas:** This is a web-based mapping tool that was developed by the Vermont Agency of Natural Resources to provide geographic information about environmental features and sites that the agency manages, monitors, permits, or regulates. It is a good place to start in developing local maps for planning purposes. Explore this tool at http://anrmaps.vermont.gov/websites/anra/.

- **BioFinder:** This is another web-based mapping tool that was developed by the Vermont Agency of Natural Resources for identifying Vermont's lands and waters that support high priority ecosystems, natural communities, habitats, and species. The most comprehensive assessment of its kind in Vermont, BioFinder was developed to further collective stewardship and conservation efforts. BioFinder differs from the Natural Resources Atlas in that the program can analyze the data and indicate statewide priority rankings. Explore this tool at http://biofinder.vermont.gov/.

- **Basic Natural Resources Inventory:** This Vermont Fish & Wildlife Department website gives an overview of the types of data that should be including when developing a natural resources inventory and accompanying maps. This website provides useful guidance about inventories in general and the Agency of Natural Resources' mapping tools. Learn more at http://www.vtfishandwildlife.com/cwp_inventory.cfm.

- **Vermont Center for Geographic Information (VCGI):** VCGI is a clearinghouse for geospatial data that is used for making maps of Vermont. The website also includes mapmaking software for users. Learn more at http://vcgi.vermont.gov/.

VNRC Reports & Data

- ***Roundtable on Parcelization and Forest Fragmentation – Final Report:*** This is a report by a consortium of diverse public and private perspectives containing recommendations for reducing the parcelization and fragmentation of Vermont's forests. Download the PDF at http://vnrc.org/wp-content/uploads/2012/08/Forest-Roundtable-Report.pdf.

- ***Wildlife Considerations in Local Planning: An Evaluation of a Decade of Progress in Vermont:*** This publication was prepared by VNRC for the Vermont Fish and Wildlife Department in 2011. It includes a detailed assessment of how Vermont's municipal plans, zoning bylaws, and subdivision regulations discuss and incorporate the conservation of wildlife and other natural resources. Download the PDF at http://vnrc.org/wp-content/uploads/2012/08/Wildlife-Considerations-in-Local-Planning1.pdf.

- ***Informing Land Use Planning and Forestland Conservation through Subdivision and Parcelization Trend Information:*** This publication was prepared by Vermont Family Forests and VNRC in 2010. It provides information on forestland ownership and subdivision trends in Vermont. Case studies related to zoning and forestland conservation are included. Download the full report at www.vnrc.org/subdivisionreport.

- **Forestland and Parcel Data for Your Town:** This site allows you to review statewide or town specific information. Learn more about your town including the number of acres enrolled in the Current Use Program, the number of forested parcels over 50 acres, acres of land conserved, etc. at www.vnrc.org/subdivisionreport.

- ***Critical Paths: Enhancing Road Permeability for Wildlife in Vermont ~ Recommendations for "On the Ground" Improvements at Priority Road Crossing Zones in the Green Mountain Corridor.*** This publication was prepared by National Wildlife Federation, Vermont Fish and Wildlife Department and Vermont Natural Resources Council in 2009. It identifies eleven priority wildlife crossing zones in the Green Mountain Corridor and provides land use and management recommendations for municipalities. Download the full report at http://vnrc.org/programs/forests-wildlife/.

Municipal, State & Federal Entities

- **Regional Planning Commissions (RPCs):** Vermont has 11 regional planning commissions, who provide a variety of services to member municipalities. Services vary by RPC, but generally include land use, affordable housing, transportation, and open space planning expertise; GIS mapping services; brownfields assessment and redevelopment assistance; and economic development planning. Contact your RPC to learn about available technical support. RPC contact information can be found at http://vapda.org/.

- **Vermont Fish & Wildlife Department:** The Vermont Fish & Wildlife Department is part of the Vermont Agency of Natural Resources. Their mission is to protect and conserve all species of fish, wildlife, plants, and their habitats for the people of Vermont. The Vermont Fish & Wildlife Department provides a broad range of services to the public including wildlife and fisheries management, threatened and endangered species monitoring and restoration, habitat conservation, and educational programs for hunters, young people and teachers. Learn more at www.vtfishandwildlife.com/about_history.cfm.

- **Vermont Department of Forests, Parks & Recreation:** The Vermont Department of Forests, Parks & Recreation is part of the Vermont Agency of Natural Resources. Their mission is to practice and encourage high quality stewardship of Vermont's environment by monitoring and maintaining the health, integrity and diversity of important species, natural communities, and ecological processes; managing forests for sustainable use; providing and promoting opportunities for compatible outdoor recreation; and furnishing related information, education, and service. Learn more at www.vtfpr.org.

- **County Foresters:** Housed within the Vermont Department of Forests, Parks & Recreation, county foresters maintain records and maps of forestland that is enrolled in the state's Current Use Program. They also provide assistance to landowners including possible management goals and strategies. Learn more at http://www.vtfpr.org/resource/for_forres_countfor.cfm.

- **Vermont League of Cities and Towns:** VLCT is a non-partisan, nonprofit organization owned by Vermont's municipalities. The league provides educational, legislative, and insurance trust services, as well as legal advice, to all political subdivisions of the state of Vermont. Learn more at http://www.vlct.org.

- **Vermont Department of Housing and Community Development:** VHCD staff provides training, technical and financial assistance to enhance local community and economic development programs and practices including local and regional land use and smart growth designations to enhance Vermont's unique landscape of compact centers surrounded by working landscapes. Learn more at http://accd.vermont.gov/about_us.

- **U.S.D.A. Forest Service and Green Mountain National Forest Service:** The Green Mountain National Forest provides ecological and science-based forestry stewardship, clean water, diverse vegetation, high-quality forest products, economical and educational contributions, and trail-based backcountry recreation. Financial assistance through grants and cooperative agreements is available to cooperators from the Forest Service (primarily Research and State and Private Forestry units). Learn more at http://www.fs.usda.gov/greenmountain.

- **U.S.D.A. Natural Resources Conservation Service:** The NRCS provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment. Diverse assistance programs are available related to maintaining water quality, soil productivity, forestry management planning, etc. Learn more at http://www.nrcs.usda.gov/wps/portal/nrcs/site/vt/home/.

- **U.S. Fish and Wildlife Service:** The mission of the U.S. Fish and Wildlife Service is to work with others to conserve, protect and enhance fish, wildlife and plants and their habitats for the continuing benefit of the American people. Programs foster aquatic conservation and assist voluntary habitat conservation and restoration on private land. Learn more at http://www.fws.gov/northeast/vt.htm.

Conservation/ Forest & Wildlife Stewardship Organizations

- **Association of Vermont Conservation Commissions:** The mission of the Association of Vermont Conservation Commissions (AVCC) is to build the effectiveness of conservation commissions and community groups working to sustain their natural and cultural resources. Learn more by going to AVCC's new website, which is expected to be live by Nov. 1, 2013: www.vtconservation.org. For questions, or to join the AVCC listserv, please contact Jake Brown, Government Affairs and Communications Director at VNRC (jbrown@vnrc.org or 802-223-2328 x111).

- **Audubon Vermont:** Audubon Vermont is a nonprofit organization providing environmental awareness and education programs such as the Forest Bird Initiative, which integrates science, education, public policy and forest management expertise to conserve forests within Vermont that are important to birds. Learn more at http://vt.audubon.org/.

- **Consulting Conservation Biologists of Vermont:** Ecologists, zoologists, botanists, and conservation planners who are trained in the principles and practices of conservation biology. They can assist towns, watershed associations, multi-town groups, and individual landowners with ecological assessment, conservation planning, and site management planning. To learn more, call Liz Thompson at 802-373-7597.

- **Consulting Foresters:** Consulting foresters assist private landowners in identifying and achieving goals for their woodlands, including managing for forest products, wildlife habitat, recreation, water resources, and aesthetics. Services provided by consulting foresters include forest resource planning, marking trees to be removed, preparing and negotiating contracts, administering sales of forest products, appraisals and inventories, and assisting in tax treatment of woodlands. For a list of Vermont Woodlands accredited consulting foresters go to http://www.vermontwoodlands.org/certified-foresters.asp.

- **Keeping Track®:** Keeping Track® helps conserve key wildlife habitat by showing people "where the wild things are." Adult and youth training programs are designed to both inspire community volunteers as well as turn them into practitioners of a science-based field study methodology. Learn more at http://keepingtrack.org/.

- **Land Trusts:** There are many organizations in Vermont that are dedicated to helping Vermonters conserve their land for the enjoyment and use of future generations. Organizations That Conserve Land in VT is a detailed list of land conservation groups (primarily land trusts) and their contact information: http://www.vnrc.org/landownersummit/conservationeasementresources.pdf.

- **National Wildlife Federation:** NWF works to inspire Americans to protect wildlife for our children's future. Part of NWF's work in Vermont is to help identify priority wildlife crossings and reconnect habitat and protect wildlife. Learn more http://www.nwf.org/Northeast.aspx.

- **Staying Connected Initiative:** The Staying Connected Initiative (SCI) seeks to enhance and protect landscape connectivity for animals and people in the northeastern U.S. and eastern Canada, including substantial parts of Vermont, New York, New Hampshire, and Maine. Maps and other resources, including land use and transportation planning tools, are available at http://stayingconnectedinitiative.org/.

- **The Conservation Fund:** The Conservation Fund's mission is to save land for future generations. In addition to saving land directly, the Conservation Funds acts swiftly to accelerate and sustain conservation. The team helps communities strategically plan for development, provides loans to small green businesses, and works with companies to compensate for environmental impacts, among other efforts. Learn more about The Conservation Fund's efforts in Vermont at http://www.conservationfund.org/places-we-work/vermont/.

- **The Nature Conservancy (Vermont):** TNC is a global conservation organization working nationwide and around the world to protect ecologically important lands and waters for nature and people. In Vermont, TNC has helped (1) protect more than 183,000 acres of the state's most ecologically significant natural areas, (2) spearhead the Staying Connected Initiative, and (3) advance conservation of the Lake Champlain and Connecticut River systems. Learn more at www.nature.org/ourinitiatives/regions/northamerica/unitedstates/vermont/index.htm.

- **The Trust for Public Land (Vermont):** TPL secures conservation easements on lands until the public is able to purchase them. In this way, TPL has helped to protect approximately 53,000 acres across Vermont, resulting in the creation of community forests, parks, trails and other important public places. Learn more at http://www.tpl.org/what-we-do/where-we-work/vermont/.

- **Vermont Coverts:** Vermont Coverts is a nonprofit organization that works with woodland owners and managers to enhance wildlife habitat and promote healthy forest ecosystems. Learn more at www.vtcoverts.org.

- **Vermont Family Forests:** VFF is a family forest conservation organization that provides research, education and marketing programs in support of "family ecoforestry." Learn more at www.familyforests.org.

- **Vermont Housing and Conservation Board:** VHCB is an independent, state-supported funding agency providing grants, loans and technical assistance to nonprofit organizations, municipalities and state agencies for the development of perpetually affordable housing and for the conservation of important agricultural land, forestland, recreational land, natural areas and historic properties in Vermont. Learn more at www.vhcb.org.

- **Vermont Land Trust:** VLT is a member-supported, nonprofit land conservation organization that has permanently conserved more than 1,650 parcels of land covering more than 500,000 acres in Vermont. VLT provides technical and legal assistance to individuals, communities, and local land trusts to help them achieve their conservation objectives. Learn more at http://www.vlt.org/.

- **Vermont Natural Resources Council:** VNRC's mission is to protect and restore Vermont's natural resources and environment for present and future generations through research, education, collaboration and advocacy. VNRC assists communities and local governments with innovative planning techniques for strong downtowns and villages, as well as outlying rural areas including intact forestland and wildlife habitat. Learn more at http://www.vnrc.org.

- **Vermont Woodlands Association:** A nonprofit organization that strives to educate, train, and support private forest landowners in sound forest management practices that support wildlife, water quality, wood products and recreation. VWA also sponsors community and teacher educational programs. Learn more at www.vermontwoodlands.org.

For a list of additional conservation organizations, go to: http://www.vhcb.org/vermontnonprofits.html#list.

ENDNOTES

Chapter 2: Status of Forestland in Vermont

1 There are different methods for determining total forest cover, but the following source estimates that Vermont has 81.5% tree cover based on an aerial photograph interpretation of circa 2005 imagery. Nowak, D. J., & Greenfield, E. J. "Tree and Impervious Cover in the United States." *Landscape and Urban Planning*. 107, 21-30. Published by Elsevier B.V. 2012: p. 24. Available at: http://www.nrs.fs.fed.us/pubs/jrnl/2012/nrs_2012_nowak_002.pdf.

2 *2010 Vermont Forest Resources Plan: State Assessment and Resource Strategies*. Vermont Department of Forests, Parks and Recreation at the Agency of Natural Resources. June 2010: p. 91. Available at: http://www.vtfpr.org/documents/VT Forest Resources Plan.pdf.

3 *Informing Land Use Planning and Forestland Conservation Through Subdivision and Parcelization Trend Information*. Prepared by Vermont Family Forests and the Vermont Natural Resources Council. Sept. 2010: p. 8. Available at: http://www.vnrc.org/subdivisionreport/Full Subdivision Report with Appendices.pdf.

4 Id.

5 *An Overview of the 2010 Vermont Forest Resources Plan*. Prepared by the Vermont Department of Forests, Parks and Recreation at the Agency of Natural Resources. June 2010. Full report available at: http://www.vtfpr.org/htm/for_resourcesplan.cfm.

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VNRC Vermont Natural Resources Council

9 Bailey Avenue, Montpelier, VT 05602

Tel: (802) 223-2328
Fax: (802) 223-0287
Email: info@vnrc.org
Web: www.vnrc.org