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Related Topic Areas: Facilities Management; Growth Centers; Hazards Mitigation; Land Use & Development Regulations; Open Space & Resource Protection Programs; Planned Unit Development; Subdivision Regulations; Transfer of Development Rights; Zoning Regulations

Open Space & Resource Protection Regulations

Overview

Municipal land use regulations offer an effective—though not necessarily permanent—way to preserve open space, including natural, cultural, and scenic resources that are important to the community. Regulations can be used to manage the type, density, and location of development in relation to designated open space areas, to incorporate “green infrastructure” into project design and to avoid or mitigate adverse impacts to critical or fragile cultural and ecological resources.

Any regulations adopted by the community must conform to the municipal plan and further state planning goals to “identify, protect and preserve important natural and historic features of the Vermont landscape” (24 V.S.A. §4302). In addition to a land use section, municipal plans are required to include “a statement of policies on the preservation of rare and irreplaceable natural areas, scenic and historic features and resources” (24 V.S.A. §4382). It’s therefore important for the municipal plan to:

- identify natural, cultural, and scenic resources and open space areas that are important to the community and



When implementing a municipal plan’s goals to protect resources, including areas such as wetlands, wildlife habitat, and other components of the “green infrastructure,” a combination of both regulatory and nonregulatory approaches is usually most effective. Photo by Lee Krohn.

- are to be preserved or protected from incompatible development and
- include related policies, objectives, and specific recommendations for local regulation to protect these resources.

Clearly stated plan policies and recommendations offer much needed guidance in drafting land use regulations and for the review of development proposals in local and state regulatory proceedings.

Comprehensive municipal plans, as guidance documents, may not always provide the level of detail needed for regulation. Supplemental open space plans that include more detailed resource information, maps, and community conservation priorities are especially useful in drafting and administering regulations. An open space plan used for regulatory pur-

poses should be incorporated within or appended to the municipal plan, and adopted by the municipality as part of the plan or as a plan amendment.

Conservation commissions that serve in an advisory capacity to local boards and landowners can also be helpful in developing regulations that protect community resources. Commissions can do the fieldwork and mapping needed to more clearly identify resources to be protected, prepare open space plans, and advise the planning commission on regulatory techniques that are available to protect identified resources and are acceptable to local landowners. (For more information on open space plans and conservation commissions, see topic paper, Open Space & Resource Protection Programs.)

Supporting Plan Policies

A municipal plan needs to provide clear instructions for resource protection. For example, it may include a recommendation to limit or prohibit development on steep slopes to limit soil erosion and protect water quality. Such a recommendation, however, is more useful if “steep slopes” are clearly defined (and mapped) in the plan for use in drafting local regulations and in Act 250 reviews.

Conservation commissions, if authorized in the regulations, may also assume an advisory role in the local review of development applications. Chapter 117 (§4464) specifically authorizes conservation commissions that are appointed by the municipality to:

- review development applications and prepare recommendations under conservation and resource protection standards for consideration by the appropriate municipal panel.
- meet with applicants and interested parties, conduct site visits, and perform other fact-finding activities that will aid in the commission's review of an application.
- inform applicants of any negative findings and recommend options to correct deficiencies in the application prior to a public hearing on the project.

Commission findings and recommendations may then be presented to the planning commission, zoning, or development review board either in writing prior to or at the public hearing on the project or as oral testimony at the hearing. The commission

or board reviewing the project then determines whether to accept or reject the conservation commission's findings and recommendations.

Application

Regulatory resource protection tools, because of their restrictive nature, should be used judiciously to meet community preservation goals and objectives. There are a variety of techniques available to encourage, or require, the protection of local resources, as outlined below. Those tools appropriate for local consideration will depend in part on:

- the type, extent, and nature of the resource(s) to be protected;
- plan policies and recommendations that establish the public purpose for local regulation;
- the types of local land use regulations currently in effect; and
- the types of incentives or restrictions that will address community objectives without unnecessarily limiting the use of property, or unduly restricting the rights of individual property owners.

Most resource protection tools are designed for incorporation within ex-

isting zoning, subdivision, or unified development regulations. However, some, such as flood hazard area or shoreland regulations, can be adopted as separate stand-alone bylaws that apply only to those areas or resources specified in the regulations. For example, some communities without townwide zoning have adopted flood hazard area regulations that apply to development only within designated flood hazard areas. Tools that affect the density of development, as described below, are most easily applied under unified regulations that integrate zoning and subdivision standards.

In many instances, available plan and mapped information is not detailed enough for use in the review of individual development projects. Plan information and maps can be used to flag resources or areas that may be sensitive to potential impacts, but additional site investigation by the applicant and the review panel is usually needed to determine the type and extent of resources found on a particular site.

It's important that local land use regulations identify—and clearly

Conservation Commission's Role in Local Development Review

Example: Town of Williston

What Is the Open Space Plan?

The Open Space Plan specifies natural resource criteria that must be considered by the Development Review Board in the subdivision approval process. Areas that are specified under the Open Space Plan have been digitized on the Geographic Information System (GIS). The town's GIS also includes each parcel in the town of Williston. Data "layers" (each layer being a criterion) come from a variety of sources showing greenways, prime open land, alternative transportation paths, primitive trails, country parks, neighborhood parks, rivers, lakes and

ponds (and accesses), and woodland slopes and ridges. Data have also been digitized from wetlands, rare and endangered species, and archaeological sensitivity. Every project proposal can therefore be cross-referenced with natural resource criteria.

How Does the Process Work?

When a subdivision application comes into the Town Offices, the parcel(s) involved are cross-referenced with criteria from the Open Space Plan. If the proposed subdivision is located on a parcel(s) which affect one or more of the criteria in the Open Space Plan, it is forwarded to the Conservation Commission. ...

In the case of projects that have any significant effect on Open Space Plan criteria, the Commission will invite the developer and/or landowner in to

discuss the project at a Commission meeting. Generally a site walkover is performed, and Town staff assist the Commission as it gathers information on the proposal. Based on this work and subsequent discussion, findings and recommendations are submitted by the Commissioner working on the proposal and voted on by the Commission. Once approved by the Commission, recommendations are forwarded to the Development Review Board.

Commissioners attend the Development Review Board meetings that include these projects to provide clarification if needed. Generally, by the time a project proposal has reached this stage, agreements have been reached with the Conservation Commission that expedite the approval process.

Source: The 2006 Williston Conservation Commission website <http://town.williston.vt.us/conserv.htm>.

define for identification on the ground—those natural, cultural, and scenic resource and open space areas to be considered in both project design, as specified in application requirements, and in project review, as specified in related development review standards.

Regulations, because they are subject to amendment and repeal, cannot ensure permanent protection of local resources. They're most effectively used in combination with other, nonregulatory conservation strategies, including programs that offer assistance and incentives to local landowners.

Development Review Standards

Natural resource and open space protection standards can be incorporated in regulations in a variety of ways, depending on the intent, including:

- **General standards that apply to all development within any zoning district**, for example, surface water and wetland setback and buffer requirements or steep slope management requirements.

Coordinating Resource Protection Requirements

State permits, and in some cases, federal permits are required for development that impacts on resources such as wetlands, streams, and rivers. For projects that trigger Act 250 review, additional resources, such as agricultural soils, earth resources, wildlife habitat, scenic areas, and archeological and historic resources, are identified and impacts evaluated.

When crafting local resource protection regulations, applicable state and/or federal permitting processes should be reviewed to determine how local review can compliment and not conflict with them. Permit specialists from the Agency of Natural Resources can be of assistance in explaining state permitting requirements.

These types of standards should be crafted so that they can either be applied by the administrative officer without discretion (setbacks, for example), or trigger referral to an appropriate municipal panel for further review.

- **Zoning district standards that apply to development within specified zoning districts**, for example, construction and flood-proofing standards within flood hazard districts, shoreline setback and buffer requirements within designated shoreland districts, ground-water protection standards within designated water supply source protection areas, or siting and screening standards in viewshed districts. Typically these would apply under site plan or conditional use review.
- **Standards that apply under specified development review procedures**, for example, for all development subject to site plan, conditional use, or subdivision review, regardless of the zoning district. These may include requirements for the incorporation of existing natural features, greenways, and green infrastructure in site and subdivision design, standards for the management of stormwater runoff and erosion, or siting and development standards to avoid or mitigate the impacts of development on identified resources.
- **Standards that apply to specified uses**, for example, uses that are known to have environmental impacts, such as mining, quarrying, and other resource extraction activities, regardless of the zoning district. These typically are applied under site plan or conditional use review.

Adding key standards under existing regulations is probably the easiest way to address resource and open space protection and the “undue adverse effects” of development, as characterized in Chapter 117. Site plan and conditional use review can include local standards, as specified in the regulations, for site layout and

Permit Application Requirements

For all types of regulation—but especially for those designed to protect local resources—bylaws need to specify the type of information required for inclusion in permit applications.

Most mapped data used for municipal planning purposes are developed from aerial photographs each with varying levels of accuracy. This information is useful in identifying the approximate location of such resources (for example, wetlands, water bodies, topography, wildlife habitat, soils), but it's not generally detailed enough to be meaningful for the review of specific sites. More specific site investigations to document the location, extent, and significance of a particular resource is usually necessary, but this can be very expensive for applicants.

Here are some typical situations planning commissions face in crafting bylaws for resource protection:

- Should the applicant be required to hire a specialist, like a wildlife biologist, to conduct a study of wildlife habitat, or is a townwide habitat map sufficient for identifying critical habitat areas?
- Should required stream buffers be identified, surveyed, and flagged on-site by a riparian expert, or is it sufficient to show a dimensional setback from a mapped edge or center of the stream?
- Is mapped topographical data sufficient to determine the presence of steep slopes, or must the site plan show existing grades throughout the area to be developed?

The bylaws, and related application checklists, should clearly specify the types of resources to be identified in application materials and the type of additional field documentation that may be required (for example, as requested by the review panel).

Many communities rely on a combination of resource maps, application materials, and site visits early in the review process to flag the need for more detailed site analyses by the applicant.

design and resource protection. Conditional use and subdivision standards may also include state Act 250 criteria for resource protection (as found under 10 V.S.A. §6086). 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” (§4418).

Growth Centers

Growth centers, as delineated in the municipal plan, define those areas of the community that are supported by existing or planned infrastructure and are intended to accommodate a majority of new growth and development over a twenty-year period. Conversely, they also define those areas outside the growth center that are not planned for intensive development and typically include important rural resource or open space areas. Zoning districts, district standards, limits on the extension of infrastructure, and associated permit and infrastructure capacity allocation requirements can be used to support development within growth centers, and to limit development outside these areas. (For more information, see related topic papers, Facilities Management and Growth Centers.)

Resource Protection Districts

Zoning regulations are often used to limit the type, density, and location of development within resource protection or hazard areas. Chapter 117 (§4414) specifically authorizes the designation of agricultural, rural residential, forest, recreational, flood hazard, and shoreland zoning districts and enables other locally defined districts, such as conservation districts. Resource protection districts generally should correspond to resource protection areas recommended in the municipal plan, as identified on the plan’s proposed resource or land use maps.

The purpose of such districts is to limit allowed development in order to:

- protect resource and open space areas—or resource-based uses such as farming, forestry, recreation, or mining and quarrying operations—from incompatible development or
- avoid potential hazards to the public and to individual property owners, such as in designated flood hazard or water supply source protection areas.

The purpose of resource protection districts should conform to the municipal plan’s objectives for these areas and be clearly stated in the regulations. Allowed uses and densities of development should be consistent with the stated purpose and compatible with the intended use of land in the district.

In their purest form, resource protection districts are “exclusive” districts that intentionally exclude incompatible forms of development, including most or all types of residential development. For example, agri-

Local Participation in State Regulatory Reviews

In addition to adopting Act 250 criteria under local regulations, municipalities also have legal standing to participate in state Act 250 proceedings, and in hearings before the Vermont Public Service Board (Section 248 hearings). Local participation in state proceedings ensures that resources to the community are identified and considered for protection or to mitigate the impacts of proposed development. This option is open to all municipalities including those with no local regulations.

cultural districts that allow only farming, ranching, and other land-based resource uses are common in western states, but are rare in Vermont. Other examples include quarrying or mining districts specifically intended to accommodate existing and expanded extraction operations.

Exclusive zoning can be used to

Setback, Buffer, and Building Envelope Standards

Some of the most common and effective techniques used to site development to avoid or minimize impacts to natural and cultural resources include:

Setbacks, which require that all development, except for allowed encroachments, be set back a specified distance from designated resources, such as surface waters, wetlands, or critical habitat areas. Adequate setback distances will vary based on their intended purpose, and local site conditions, such as soil types, slopes, and vegetative cover. How setbacks are to be measured should be identified in the regulations.

Buffers, which require physical or visual buffers, often in association with required setbacks, to avoid adverse impacts to adjoining resources or incompatible uses. Buffering can afford additional protection and, like setbacks, may vary

depending on site conditions and the types of resources to be protected. Long-term buffer management plans—for example, to include cover management or cutting restrictions—also are generally required. Technical assistance to identify adequate buffer distances and long-term management standards may be needed.

Building Envelopes, which limit the developable portion of a lot to one or more designated areas or “envelopes” that are located and sized to minimize site disturbance and to avoid adverse impacts to environmentally sensitive areas and resources, such as prominent ridgelines, steep slopes, wetlands, or habitat areas. Building envelopes are especially useful in limiting the area of development on large parcels and are generally subject to site plan, subdivision, or conditional use review. Standards generally require that all principal and accessory structures and parking areas be located within designated building envelopes.

Protecting the Working Landscape

Residential development is one of the most common—and difficult—types of use to accommodate in rural, resource-based zoning districts. Residential uses often conflict with resource-based industries, including active farming, forestry, gravel extraction, quarrying, and mining operations.

For this reason, resource-based zoning, in its purest form, typically excludes most residential development. Some types of industrial and commercial uses maybe more compatible with the working landscape than residences

The wealth of farmers and other rural landowners, however, is often tied up in the land, and the subdivision, sale, and development of at least some land for residential development may be needed to fund college, retirement, or continued farming operations. Balancing protection of the resource base for long-term use with the more pressing needs of local landowners is a real challenge.

eliminate incompatible land uses from a district if the primary use of the district remains economically viable. Otherwise, such zoning can result in a regulatory taking of land that may require landowner compensation.

Exclusive protection districts that have been upheld by Vermont courts include remote, high-elevation forest or conservation districts that allow forestry and outdoor recreation but pose severe physical limitations for other forms of development. Such districts may also include farmland, forestland, or conservation lands that have been protected through other means, such as the transfer or sale of development rights. Exclusive protection districts are especially suited for designation as “sending areas” under local transfer of development right programs. (See the related topic papers.)

Because resource protection districts are designed to be restrictive,

they are often controversial and may even be deemed exclusionary if used to intentionally limit housing development over large areas of the community. Out of concern for local landowner interests, most resource protection districts in Vermont allow for limited residential development but also include additional density, siting, buffering, and resource protection standards to limit the impacts of residential development.

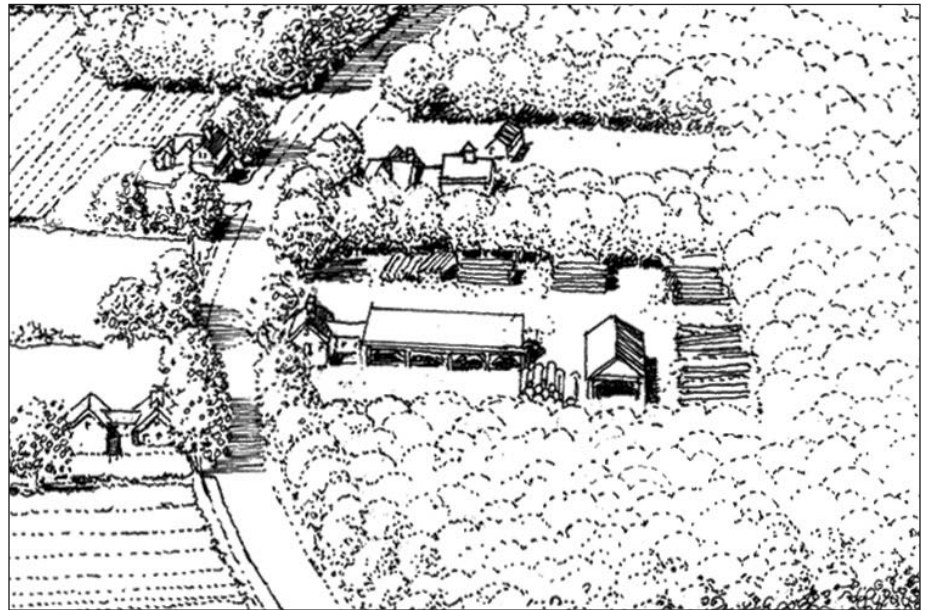
Overlay or Critical Area Zoning

Overlay districts—zoning districts that are superimposed on underlying zoning districts—offer a more flexible type of zoning that is limited in its extent or coverage to those resources designated for protection, which may be scattered throughout the community. Overlay districts can be used to exclude development on or to impose resource protection standards within overlay areas. Overlay districts are adopted and amended in the same manner as other mapped zoning districts and are typically incorporated by reference in the zoning regulations.

The most common type of resource-based overlay districts in Vermont are *flood hazard area overlay districts*, as delineated on Flood Hazard Boundary Maps (FHBMs) or Flood Insurance Rate Maps (FIRMs) issued for each municipality by the Federal Emergency Management Agency. These are used to administer locally adopted flood hazard area regulations—including related siting and construction standards—that minimize hazards due to flooding and also allow property owners to obtain flood insurance through the National Flood Insurance Program.

Other types of overlay districts include, but may not be limited to:

- **Watershed or stormwater management districts** that limit the type, amount and extent of development and impervious surfaces within the district in order to protect surface and groundwater quality.
- **Surface water, wetland, and shoreland districts** that are designed to protect water quality, stream corridors, and riparian and wetland areas from incompatible encroachments.



Small sawmill operations can be a valuable part of the local economy and a natural fit in small town landscapes. They serve family logging operations that are increasingly important to harvesting smaller forest parcels. Local zoning regulations can be crafted to permit them in appropriate rural districts.

Model Bylaw Language

Model flood hazard area, fluvial erosion hazard area, and groundwater protection overlay zoning language is available from the Vermont Agency of Natural Resources' Water Quality Division and online at www.anr.state.vt.us.

- **Groundwater or source protection area districts** that exclude development that could pollute public water supply sources.
- **Fluvial hazard districts** that limit or exclude development within actively eroding stream bank or shoreland areas.
- **Agricultural overlay districts** that exclude or limit development on primary agricultural soils or productive agricultural lands.
- **Critical habitat overlays** that limit development in the vicinity of rare, threatened or endangered communities, within core habitat areas such as feeding, breeding, nesting or wintering areas, and connecting travel corridors.

- **Viewshed districts** that restrict the siting and construction of development within designated scenic areas or viewsheds.
- **Historic preservation and design overlay districts** that regulate the design and construction of new and expanded development in accordance with adopted design standards and guidelines.

Overlay districts are more limited in their extent than larger resource protection districts, but may be even more restrictive or exclusive and just as prone to controversy. In exclusive overlay districts it may be necessary to allow for limited development on lots

"If you think five-acre zoning would protect farmland, I suggest you do a build-out analysis and look at what the land would look like after all those lots were created"

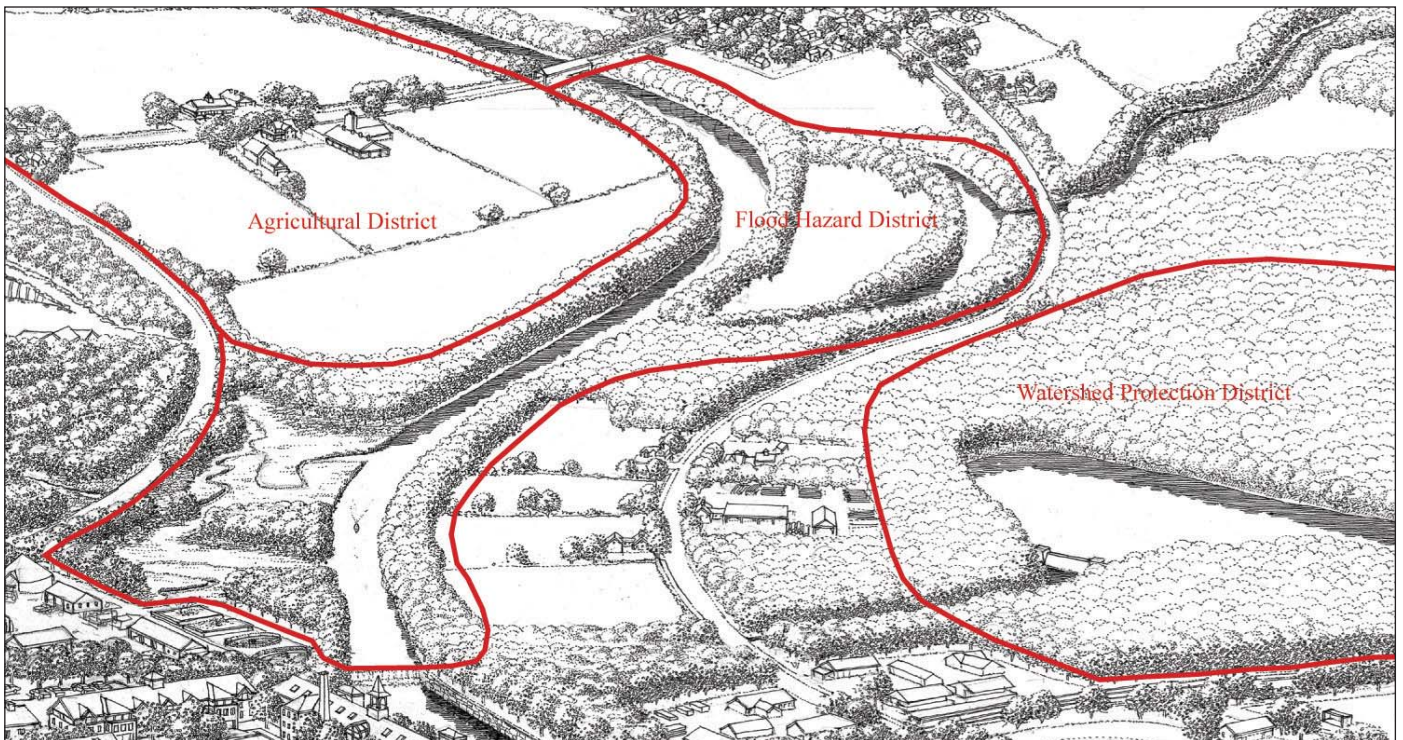
Source: Lee Krohn, Manchester Planning Director, quoted from *Sustaining Agriculture: A Handbook for Local Action*, VT Agency of Agriculture, Food and Markets (1994).

that fall entirely within the district, to avoid takings claims. The designation of too many, overlapping overlay districts can also result in some confusion in determining which, potentially conflicting, standards control. Under Chapter 117 the most restrictive standards would apply.

Large Lot Zoning

Large lot zoning refers to the designation of a very large minimum lot size within certain zoning districts to accommodate resource-based uses, such as farming or forestry, or to require a pattern of very scattered, low-density development to limit, for example, impervious surfaces and protect surface and groundwater quality.

In western states, minimum required lot sizes may be several hundred acres as needed to accommodate large-scale farming and forestry operations. In Vermont, large lots generally range from twenty-five to fifty acres—in part based on the acreage required for parcel enrollment



Resource Protection Districts are specifically authorized by Chapter 117 and include agricultural, rural residential, forest, recreational, flood hazard, and shoreland zoning districts. The purpose of such districts, whether conservation, hazard mitigation, or protection of economic resources, should be clearly stated and in conformance with the municipal plan.

Point System for Determining Density

Example: Town of Norwich

Under Norwich’s subdivision regulations, a performance-based point system is used to determine the number of units that will be allowed for any given parcel in the town’s rural zoning districts. The point system takes into account mapped site and location factors such as steep slopes, soils, and road access issues.

adopt five- or ten-acre zoning in rural areas, thinking this will protect rural character and resources. But such lots typically result in extended, scattered residential development that fragments and consumes farm- and forestland and other open space areas, makes resource management difficult, and is expensive to provide public services like school busses, road maintenance, and emergency services.

Large lot zoning is most effective for resource protection when allowed uses in the district are limited to resource-based uses, and the minimum lot size reflects the minimum area of land needed to sustain those uses. An alternative is to encourage clustering of new residential development, employing one or more of the tools discussed below.

Sliding Scale Density Standards

Example: Town of Middlebury

This sliding scale density standard in the zoning regulations applies to subdivisions within Middlebury’s Agricultural Residential District.

Parcel Area (acres)	Permitted Number of Lots (existing and new homesites)
0–3.9	1
4–13.9	2
14–23.9	3
24–33.9	4
34–43.9	5
44–53.9	6
54–63.9	7

in the state’s current use tax abatement program.

Large lot zoning can be used to effectively establish or maintain a pattern of scattered, low-density development, but by requiring the subdivision of relatively large tracts of land, it may also result in the unnecessary fragmentation of valuable farm- and forestland. It can also create a large number of nonconforming parcels that are grandfathered for future use.

Anything over one acre is often considered “large” for purposes of residential development in rural zoning districts. Many communities

Fixed Area and Sliding Scale Zoning

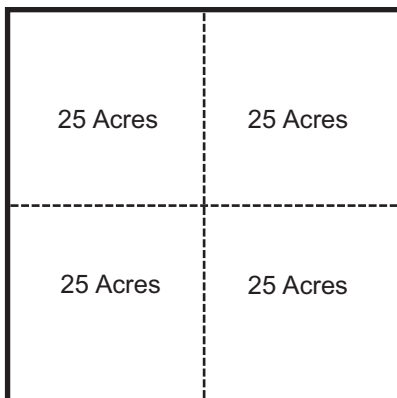
Fixed area and sliding scale zoning are two zoning techniques—typically applied in association with subdivision regulations—that are used to differentiate allowed densities of development from district lot size requirements. These are used to require low, overall densities of development (for

example, one unit per twenty-five acres), often in association with a small maximum lot size (for example, one acre) that limits land fragmentation and isolates incompatible uses. These techniques are especially useful in rural resource districts that allow for limited residential development.

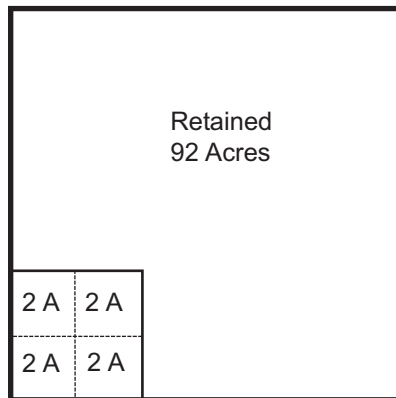
The density of development allowed is based on the initial parcel size. In fixed area zoning, the density (number of units per acre) is fixed; it does not vary by parcel size. Under a sliding scale, the allowed density varies with parcel size: the density of development (relative number of allowed units) decreases as parcel sizes increases.

For example, in an agricultural district, if the maximum allowed density for residential development is one unit per 25 acres, four units could be developed on a 100-acre parcel. If the maximum lot size for the district is 2 acres, the four units would be limited to 8 of the 100 acres; the remaining 92 acres would be “set aside” as part of one of the lots, or conserved as open space for continued agricultural use. When district siting standards or residential clustering requirements are also applied—for example, in associa-

Fixed Area Base Zoning Separating Density from Lot Size Requirements



Parcel: 100 acres
 Dwelling Units: 4
 Density: 1 unit/25 acres
 Minimum Lot Size: 25 acres
 Residential Acreage: 100 acres



Parcel: 100 acres
 Dwelling Units: 4
 Density: 1 unit/25 acres
 Maximum Lot Size: 2 acres
 Residential Acreage: 8 acres

Variation on Sliding Scale Zoning

Example: *Town of Starksboro*

The town of Starksboro uses a variation of sliding scale zoning in its Agricultural District. Under current regulations, the minimum lot size in this district is 25 acres, for a maximum density of one unit per 25 acres, but the regulations also allow smaller lot sizes as “incentives for the preservation of rural character,” if development is restricted or “set aside” on that portion of the lot intended for agricultural use.

Maximum Building Lot Size	Minimum Required Set Aside (per lot)	Minimum Required Acreage (per dwelling unit)
1 acre	9 acres	10 acres
up to 2 acres	13 acres	15 acres
up to 3 acres	17 acres	20 acres

In addition, the regulations require that:

- The set aside area shall be the best agricultural land.
- Set asides should be grouped or clustered where possible to provide the most viable aggregate units.
- The set aside portion need not be contiguous with the developed parcel, but should be “all of one unit of a logical scale intended to preserve the best agricultural land in the most viable manner, and grouped with other set asides whenever possible.”

Source: Starksboro Zoning Regulations.

tion with subdivision review—the houses are required to be located on the least productive land, leaving the best soils for farming. Buffers around residential uses also can be required to limit impacts from neighboring farming operations.

Set aside or conserved areas are protected through plat notations that limit further subdivision, conservation easements, or other deed restrictions. These areas need to be tracked by the municipality: a good legal documentation and record-keeping system is recommended!

Clustering or Planned Unit Development

Standards that require the clustering of development to preserve resource and open space areas generally apply to the subdivision of land, resulting in what are frequently referred to as “cluster subdivisions.” Clustering can be allowed, or required, through:

Design Standards for Planned Residential Development in Rural Districts

Example: *Town of Warren*

(D) Rural Hamlet Standards. In addition to the general standards set forth under Subsection (C), PRDs within the Rural Residential (RR) District shall be designed to blend new development into the historic, agricultural landscape and maintain important natural, scenic and cultural resources as described in the Warren Town Plan. To this end, PRDs shall be designed in accordance with the standards for either crossroads hamlets or farmstead clusters, as described below:

(1) Crossroad Hamlet. Proposed PRDs may be designed in a manner that replicates a traditional crossroads hamlet, characterized by a concentration of residential buildings and one or two prominent cultural, community or civic structures, located at a road intersection, bounded by farmland or forest. To replicate such a pattern, crossroad hamlets shall be designed to include:

- a contiguous grouping of dwellings, and associated accessory cultural or community buildings, and one or more common areas (e.g. village green or park), located within a compact area not to exceed 15 acres (excluding designated open space);
- lots configured to front upon road(s) and/or a common green, and so that buildings are oriented toward the road, one another and/or the common green;
- a well-defined edge between the hamlet and surrounding open space; and
- the maximum number of dwellings allowed in a Crossroad Hamlet shall be as established in Subsection 8.3(C).

(2) Farmstead Cluster. Proposed PRDs may be designed in a manner that replicates a traditional Vermont farmstead, characterized by a variety of building scales reminiscent of traditional Vermont farmsteads, which visual character is typified by the ap-

pearance of a principle dwelling and a mix of agricultural buildings (e.g., barns, outbuildings) located within a compact area surrounded by open farmland. To replicate such a pattern, farmstead clusters shall be designed to include:

- a contiguous grouping of dwellings located within a compact area not to exceed two (2) acres excluding open space—the inclusion of multi-family and affordable housing is encouraged;
- buildings set near the road and relate to one another and/or a small common area;
- a defined edge between the cluster and surrounding open space;
- no fewer than three (3) nor more than nine (9) dwelling units shall be located within a single farmstead cluster; multiple farmstead clusters may be placed on a single parcel provided they are separated by adequate open space and a minimum distance of 1,200 linear feet.

Source: Warren Land Use and Development Regulations (www.warrenvt.org).

- siting and dimensional standards specified for certain zoning districts, such as agricultural or rural residential districts, which may also allow for the waiver, under zoning, of applicable dimensional standards, including lot size and setback requirements, or
- Chapter 117 in association with planned unit development (PUD) standards that specifically allow for the waiver or modification of zoning district standards to conserve resources and large tracts of open space.

PUD standards allow for the transfer of development density to the most developable portion of a site and are often used to encourage—or require—the clustering of development to protect open space. Recent changes in Chapter 117 now allow municipalities to require PUDs and clustering, based on zoning district, parcel size, or the number of lots to be created. Related siting and management standards are also important to ensure that the lots to be subdivided

for development are located outside designated open space areas, that open space areas coincide with the community’s open space plan, and that they be maintained and managed for sustainable, long-term use. Some regulations also include specific design standards for rural subdivisions; for example, Warren has adopted “Crossroad Hamlet” and “Farmstead Cluster” design standards to require that planned residential developments in rural areas reflect traditional patterns of rural development. (For more information on PUDs, see the related topic paper.)

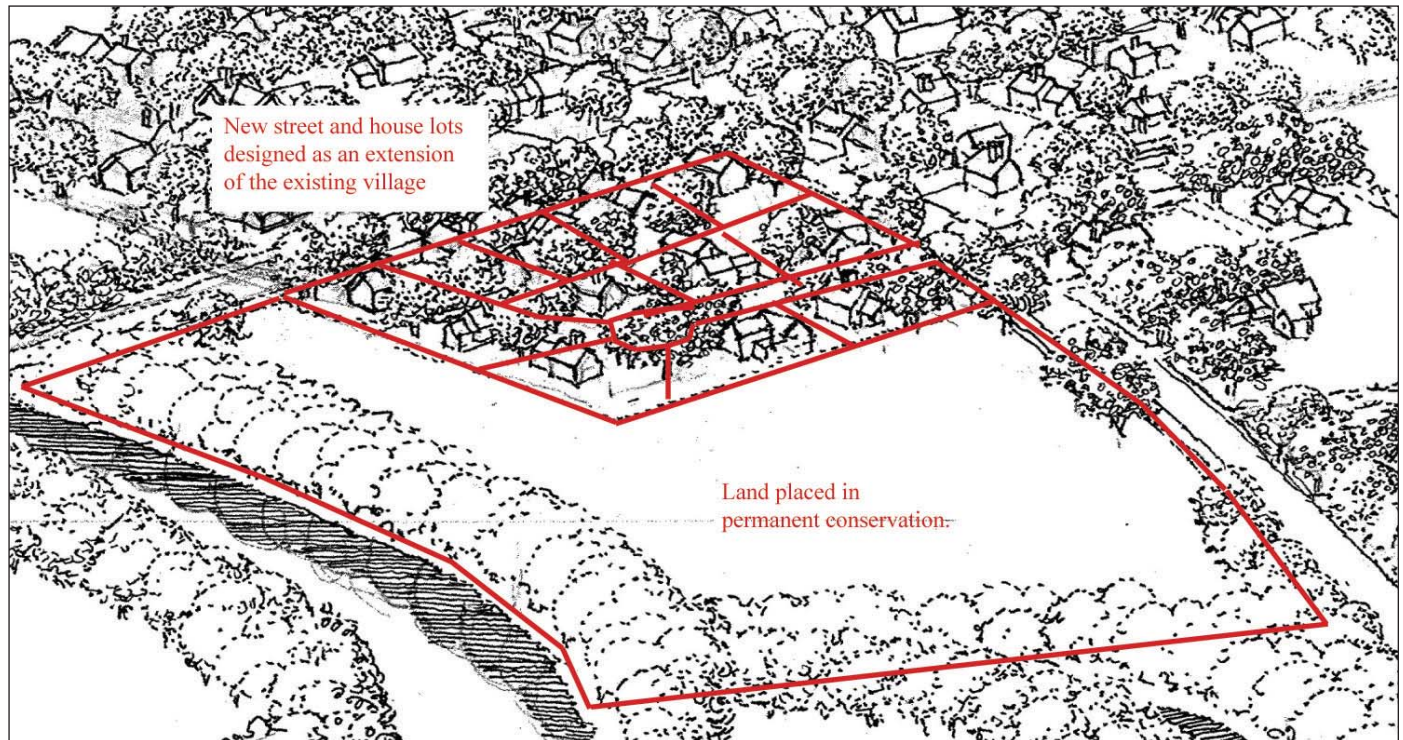
It’s important to remember that clustering provisions do not necessarily require reductions or allow for increases in the overall density of development. Density bonuses—permitting more units on smaller lots than would normally be allowed—are often used to encourage clustering and open space preservation. On the other hand, some subdivision regulations require that designated conservation and open space areas be

excluded from the total land area used to determine the allowed density, or number of lots, that may be subdivided for development, thereby reducing overall density.

Careful consideration should be given to the net effect of different density provisions found in local zoning and subdivision regulations, both for the developer, and for the overall pattern and density of development. When applied concurrently, do local density standards discourage, encourage, or require resource and open space protection?

Conservation (Open Space) Subdivision Design

Conservation or open space subdivision design is a subdivision design process pioneered and promoted by Randall Arendt, former director of planning and research at the Center for Rural Massachusetts, who is now with the National Lands Trust. Unlike



Conservation subdivisions allow the same number of new homes to be built as would be possible in a conventional subdivision but on smaller lots in the most suitable area of the site. The remaining land is set aside as permanently protected open space. In this example the development takes place at the outer edge of a village, conserving agricultural land and a forested buffer along the river.

Conservation Subdivision Design Process

1. Determining a site's "yield": the maximum legal development potential of the site (for example, based on standard minimum lot sizes).

2. Identifying open space and potential development areas, which may include "primary conservation areas" to be completely avoided (floodplains, wetlands, and steep slopes) and "secondary conservation areas" to be protected (agricultural land, woodlands, viewsheds, wildlife habitat, and stone walls), as defined in the regulations. Potential development areas consist of the remainder of the site. These should conform to open space areas identified in the commu-

nity's municipal or open space plans.

3. Locating potential house sites in developable areas, based on the yield calculated under number 1. House sites are arranged to provide physical or visual access to open space areas, while minimizing impacts and encroachments; for example, houses may be located along hedgerows or tree lines that border open fields.

4. Locating connecting roads and paths that connect identified house sites and follow logical alignments that avoid encroaching on open space areas.

5. Drawing lot lines around each house site that exclude designated open space areas, which are maintained in large, unsubdivided tracts.

conventional subdivisions, conservation subdivisions are intentionally designed to protect rural character and open space. Several Vermont communities have adopted versions of this design process in their subdivision regulations.

Conservation subdivision design, in shifting the emphasis from the creation of standard house lots to the protection of resources and open space, has obvious benefits for open space protection in rural areas, though the extension of services into these areas may still be necessary. To the benefit of the developer, the same number of units is allowed, and because houses are sited next to permanently conserved land, they usually command higher prices.

In sum, when regulating the subdivision and development of land to protect resources and open space, it's

important that:

- Those resources to be protected are clearly identified and defined in the regulations, ground.
- Designated open space areas conform to those areas identified in the community's municipal and open space plans.
- Density standards encourage or require the protection of open space areas.
- Development standards, including siting and clustering standards, minimize the impact of development on identified resources and open space areas.
- Standards include legal restrictions and requirements for the long-term protection and sustainable management of protected areas.
- The municipality has adequate record-keeping systems to track privately and publicly conserved land.