



richmond tomorrow
options for implementing our town plan



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INTRODUCTION

overview

This report is intended to identify zoning techniques that could be incorporated into Richmond's land use regulations to implement the goals and objectives of its Town Plan.

The report is organized into four sections: rural areas, village areas, creative development and natural resources. A number of zoning techniques are explored within each section. For each technique, the report includes the following elements, which are identified by the symbols shown below:



Identifies an action the town could take to implement the goals and objectives of the Town Plan.



Provides background information about the action, how it relates to Richmond, and examples of similar actions taken by other towns.



Discusses the potential benefits and issues associated with the action in recognition that there is no single "perfect" technique that can accomplish all of Richmond's goals and objectives.



Presents a specific example of the action as implemented in another community or the existing relevant language in Richmond's current regulations.



Offers sample language that could be incorporated into Richmond's regulations.

town plan

Richmond's town plan includes a number of goals and objectives that should guide revisions to its land use regulations including:

- We shall preserve Richmond's character. Richmond's unique character centers on its vibrant, multi-use village. Surrounding the village are working rural landscapes, forests, water resources and natural areas that are also essential to Richmond's character. Richmond should remain a village and rural area.
- Richmond village will continue to serve as the commercial and municipal center of the Town. Similarly, the Town will pursue residential development opportunities within Richmond village and new/other village areas, which are consistent with maintaining the character of Richmond's neighborhoods and within the constraints imposed by topography, and resource protection areas.
- Residential development should be largely concentrated within the village areas and other designated areas to ensure implementation of this plan and to conserve the Town's rural character.
- The Planning Commission, Development Review Board and Selectboard will assess the current zoning regulations for compatibility with traditional village patterns and/or alternative design standards. Zoning will be amended if necessary to promote village-scale development.
- The Town will provide for the continued availability of agricultural and forest land by supporting and encouraging sustainable farming and forestry as viable economic enterprises. The Town will cooperate with farm and forest landowners who are pursuing the permanent protection of their working land through local, state, and national programs.
- The Planning Commission will review current regulations to determine their impact on farm based value-added en-

deavors. The Planning Commission and Development Review Board will consider options to ensure that new residential development does not inhibit new and traditional agricultural and forestry operations.

- The Town recognizes that conservation, outdoor recreation and open space lands are increasingly important to the well being of Town residents. In order to facilitate preservation of these lands while respecting the property rights of their owners, the Planning Commission will explore creative development techniques which may include building envelopes, planned unit and planned residential development, clustering, fixed area and sliding scale zoning, overlay districts, conservation subdivision design, and transfer of development rights. This process will include extensive public outreach as well as input from landowners in town.
- The Planning Commission and the Development Review Board should encourage planned residential developments to conserve land and promote the most efficient use of space.
- The Planning Commission will design zoning and subdivision regulations in accordance with state and federal laws to protect croplands, floodplains, water resources, scenic sites, wildlife habitat and to promote compact development patterns that promote the efficient use of land and the protection of important natural resources and open space. These revisions may include modification of district uses and lot dimensional requirements, expanding the use of Planned Unit Developments, offering of density bonuses in exchange for resource conservation, and the creation of provisions for the Transfer of Development Rights. The process of reviewing and modifying these regulations will include extensive public input.

next steps

The Planning Commission will be using this report as part of its ongoing efforts to update the town's zoning and subdivisions regulations in accordance with the goals and objectives of the Town Plan. The Planning Commission will be meeting with and seeking the input of Richmond's residents and property owners in order to determine what specific changes should be made, particularly to the zoning districts (densities, dimensional standards and allowed uses), the planned unit development provisions and in the standards to protect natural resources.

RURAL AREAS



1. Draft a more descriptive purpose statement for the rural district.

Richmond's land use regulations require new development to be compatible with the "character of the area." The desired character is defined generally in the town plan and could be defined more specifically in the zoning district purpose statements.



Richmond's Town Plan states that within the Rural Planning Area development "should be carefully sited and clustered in a manner that will allow preservation of significant open space parcels including neighborhood recreational areas, working agricultural and forestry land, and important natural amenities. Community wastewater disposal systems may be appropriate in order to achieve this goal. This area may include multiple zoning districts which utilize creative development techniques such as building envelopes, planned unit and planned residential development, clustering, fixed area and sliding scale zoning, overlay districts, conservation subdivision design, and transfer of development rights."

A guiding principle of the Town Plan is the preservation of Richmond's rural character. The terms rural, rural character, rural landscape, rural atmosphere, etc. are used throughout the plan, but what these concepts mean in Richmond is not specifically defined. The zoning district purpose statements can be used to describe the interrelated elements that form the town's rural character.



Defining Rural Character

Defining rural character is challenging as the term can mean very different things to people, even within the same town as described below:

I've heard a lot of talk around town and in board and committee meetings about "preserving the rural character" of Shirley. Everywhere I go it seems that everyone is in agreement that this is essential ... we must preserve our rural character. But it has occurred to me that I have heard this phrase from all factions, from strict preservationists to developers ... the whole spectrum. Some of us want to preserve land just as it is ... don't walk on it, don't use it, just look at it. Some want to remove trees and soil, and place homes or businesses close together. Most of these people come to the table with the thought that their ideas are good for the town.

It is such a phenomenon to me that some time ago I began asking people what "rural character" meant to them. It seemed to me that if we could actually define "rural character" it might help us to work together toward the common goal of maintaining it.

Some people I talked to felt that maintaining Shirley in its current state was the ideal but it seems the current state depends on when you moved here. In this version, nothing changes except for the minor things like painting a building, tending to a fallen tree, or maintenance of roadways, etc. There would be no new businesses added, no new homes, no clearing of land for development purposes or even for recreational purposes.

Others I talked to felt that if a town doesn't have growth, it would die ... that it is impossible to maintain the status quo. It's either forward or backward for some. Rural character to them was focused more around the people in the town. They felt that the definition of rural character was the fact that you can go into the local hardware store or your church, or the post office and run into people that you know and can talk with.

Then there are those who would make changes to the town in order to make, in their opinion, a better town. Some feel that the look of some parts of the town could be much improved and they are committed to making that so: to develop a theme for the Village area, for example, and ensure that any changes would encompass that theme rather than the mixed way the Village has developed.

Then there are those who feel the rural character of the town is that you can be so separated from one another with large house lots and lots of buffer that you never have to interact with neighbors at all unless you choose to. They are happy with their privacy and relish it. They can become lost in the rural character and, for them, it is a good way to live.

*Excerpted from Rural Character of Shirley by Jackie Eselionis.
Published in the newsletter of the Massachusetts and Rhode Island
Chapters of the American Planning Association, Dec 2004 / Jan 2005*



Richmond Zoning Regulations (2009)

3.1 Agricultural / Residential 1 District (A/R)

Purpose. The Residential /Agricultural District is designed primarily to retain and provide areas of low density housing, particularly of the single-family type, in a rural setting. Agricultural and forestry uses of all types are essential to the concept of a rural setting. Areas of moderate density housing surrounded by open space or working landscapes, as well as homesteading occupations and cottage industries are accepted features of this district. Privacy, greenery, scenic views and vistas, local natural recreational opportunities, working residences and/or small residential clusters constitute the "character of the neighborhood".



Draft Purpose Statement for Richmond

(A) Purpose. The purpose of this district is to implement the goals and policies of the Richmond Town Plan as most recently amended. This district is intended to allow for maintenance of the town's working landscapes and open spaces, while providing opportunities for rural living. The Town Plan calls on Richmond to preserve its unique character, which includes its productive farmland, scenic landscapes and views, managed and wild forests, clean air and water, opportunities for outdoor recreation and enjoyment of nature, and natural areas and wildlife populations. Specific goals of the plan to be implemented in this district include, but are not limited to:

- (1) Encourage the conservation of land for protecting water quality, wildlife, natural resource functions, and forestry, farming, recreation and educational opportunities.
- (2) Promote a viable agricultural sector as a way to provide economic opportunity and maintain open spaces and natural resources.
- (3) Promote compact development patterns that maximize the efficient use of land and the protection of important natural resources and open space.
- (4) Utilize development methods that minimize impacts on Richmond's natural resources.

Note: Incorporating specific language from the Town Plan into the district purpose statement is a way to strengthen the link between the plan and the land use regulations.



Draft Purpose Statement for Richmond (con't)

(B) Character of the Area. The desired character of this zoning district is that of rural countryside where open space – whether open farmland or forest – is an essential component of the landscape. Privacy, quiet, dark night skies, limited traffic, narrow and largely unpaved roads, scenic views and connections to the natural environment are critical components of Richmond's rural character. The following guiding principles should be considered when establishing the types, densities, design and impacts appropriate in the district:

- (1) Agriculture and forestry should remain the predominate land uses in this district. Agricultural support businesses, ag-product processing, agri-tourism, renewable energy generation and similar businesses that improve the economic viability of farming and forestry should be allowed, especially when directly associated with a farm. Accepted agricultural and forestry practices, while potentially disruptive or objectionable to neighbors, are traditional elements of Richmond's rural character that district residents should recognize and respect.
- (2) Non-agricultural or -silvicultural or related uses should be designed and located so as to avoid disruptions to nearby agricultural or silvicultural operations, to blend into the surrounding landscape to the greatest extent feasible and to minimize their environmental impacts. Development should be guided away from those areas characterized by sensitive or critical natural resources including, but not limited to, steep slopes, streams and ponds, erosion or flood hazard areas, wetlands and vernal pools, natural heritage sites, wildlife habitat, identified source water protection or groundwater recharge areas, and primary agricultural soils. Enjoyment of nature and outdoor recreation should be encouraged.
- (3) Lots and buildings should not be standardized, regular, consistent, repetitious or cookie-cutter in their pattern or character, as is typical of suburban landscapes. New development should be patterned on the diversity typical of rural landscapes, with large and small lots and buildings, and areas of high density separated by expanses of undeveloped land.

Note: This paragraph provides a definition of "character of the area" that can be referred to during development review proceedings and that should offer a framework for discussing whether the character of proposed development will be compatible with the desired character of the district.



2. Change the one-acre minimum lot size requirement in rural areas.

Currently, Richmond has a one-acre minimum lot size in all areas not served by the municipal wastewater system. The minimum lot size could be increased, lowering the density of development in order to reduce the potential impacts to natural resources and rural character.

Rural Residential Lot Sizes



Around 43 percent of Richmond's land area is currently subdivided into residential lots. There were 1,249 residential lots (excluding mobile homes on leased land) listed in Richmond's 2008 Grand List. The average residential lot in Richmond is approximately six acres; outside the village, it is around nine acres.

So despite the minimum lot size, many lots larger than one-acre in size have been created in Richmond's rural areas over the past several decades. While the town's regulations allowed for small lots, the 10-acre exemption in the state's septic regulations likely created some incentive for larger lots. Since those regulations were changed in 2002, there have been few lots larger than 10 acres subdivided in Richmond.

Richmond is one of only a few Vermont towns with a consistent minimum lot size established in virtually all areas of town. Most communities vary minimum lot size to reflect differences in character, land use and desired pattern of development.

Richmond's neighboring towns have larger minimum lot sizes in rural areas:

- Hinesburg zones its rural land for 2- or 3-acre lots.
- Huntington's rural land is zoned for either 5- or 25-acre lots.
- Bolton zones its rural land for 2-, 10- or 25-acre lots.
- Jericho's rural land is zoned for either 3- or 10-acre lots.



As evident in nearby communities, however, larger minimum lot sizes alone may not be adequate to protect rural character and natural resources. Further, larger minimum lot sizes may result in more rapid conversion of working farm or forest land to residential use. Once fragmented into residential lots, future use of land for agriculture or forestry becomes less likely.

Changing the minimum lot size to two, three or five acres in the rural areas of town would likely not have a significant impact on the overall pattern of future development. A significantly larger minimum lot size, 20 acres or more, would likely be necessary to achieve the purpose of protecting rural character and natural resources if changing the minimum lot size were the only action to be taken by the town.



Richmond Zoning Regulations (2009)

3.1.3 Dimensional Requirement For lots in the A/R District - No Zoning Permit may be issued for Land Development in the A/R District unless the lot proposed for such Land Development meets the following dimensional requirements:

- a) Lot Area - No lot shall be less than one (1) acre.



While the amount of development can be reduced through larger minimum lot sizes, the productive value of the field shown below has been lost to lots that are "too big to mow and too small to plow." [Photos from: *Above and Beyond*. By: Campoli, Humstone and MacLean; Planners Press, 2002]



Large-Lot or Agricultural Zoning



A number of Vermont towns have zoning districts with a 25-acre minimum lot size. These are typically associated with areas of significant natural resources (wetlands, floodplains, steep uplands, important farmland etc.). The 25-acre figure is commonly used as the minimum size required for land enrolled in the state's current use program. While not as common in Vermont, rural communities in other parts of the country have adopted minimum lot sizes of 40 acres or more to protect farmland or sensitive environmental resources. Some agricultural communities around the country have linked lot size to the minimum amount of acreage needed for a viable farm in their area, which can result in a minimum lot size in the hundreds of acres.



Very large minimum lot sizes do significantly reduce development potential and its associated impacts. Broadly applied, however, they can increase the cost of a new home substantially, which may also drive up the value of nearby existing homes, potentially making the community unaffordable for current residents and their children.

Given the significant public consensus that would be needed to adopt large-lot zoning in Richmond's rural areas, this option may be more feasible if the current Agricultural/Residential district, which includes more than 90 percent of the town's land area, were divided into multiple districts. There may be some areas of town where a majority of residents would agree that a large minimum lot size is the appropriate technique for protecting rural character and natural resources.



3. Use density-based zoning to separate density from lot size.

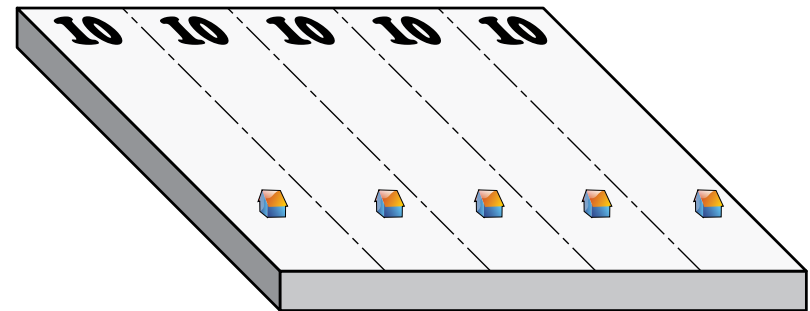
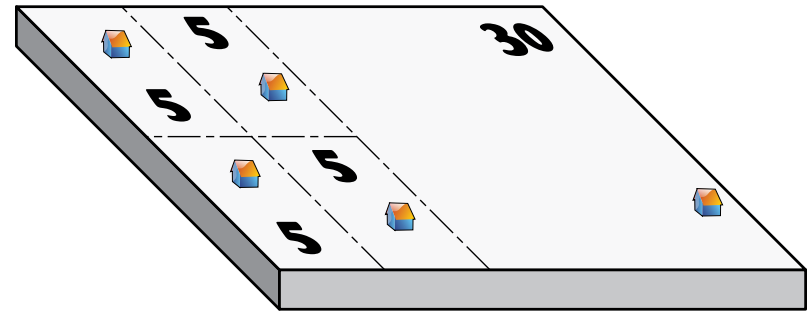
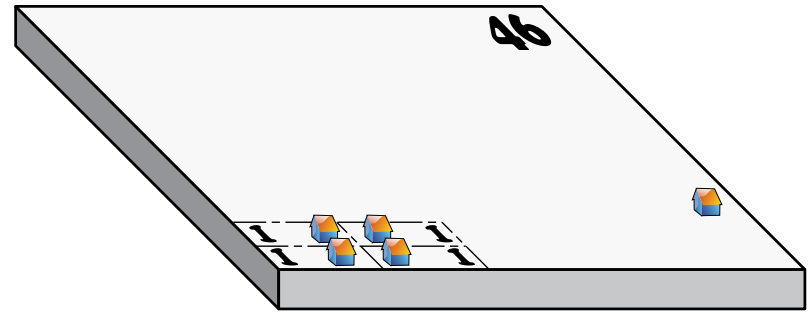
Richmond could implement density-based zoning as a way to maintain the low density of development characteristic of rural areas while allowing the subdivision of small lots for new homes.



Density-based zoning specifies the number of dwelling units allowed per area of land (see diagram). A minimum lot size, commonly one or two acres in rural areas, may also be specified. This technique is also referred to as fixed-area zoning or lot averaging. Vermont towns that have density-based zoning districts include:

- Weybridge uses density-based zoning in all its districts. In the rural areas, the density is one home per 5 or 25 acres. There is no minimum lot size specified in the regulations, but a building envelope of 30,000 square feet per dwelling is required in the rural districts.
- Middlesex's Rural Residential district has a density of one dwelling per five acres and a minimum lot size of two acres. Middlesex's Conservation district has a density of one dwelling per ten acres and a minimum lot size of four acres.

The amount of development potential remaining on subdivided land needs to be tracked over time. It may be that the owner of a 50-acre undeveloped parcel in a zone with a 10-acre density wants to divide the property into two lots, but the lots will not be immediately developed – the town will need to document how the five potential units that can be built will be allocated between the lots. Towns also need to decide whether they will allow creation of new parcels with no associated development rights or whether each lot must be allocated the right to at least one home.



A district may have a density of one home per 10 acres, but a minimum lot size of one acre. In this district, a 50-acre parcel of land can be developed with up to five homes. There may be four homes on four 1-acre lots with a fifth home on 46 acres. There may be four homes each on a 5-acre lot with a fifth home on 30 acres. There may be five 10-acre lots.



Weybridge Zoning Regulations (2005)

Section 205 - Density-Based Zoning

Development consistent with the Town Plan may best be achieved through a flexible land use policy based on density of housing rather than the rigid specification of minimum lot size. Consequently, these zoning regulations specify a maximum housing density in each zoning district, rather than a minimum lot size. Density-based zoning is intended to ensure that development in Weybridge makes the most appropriate and efficient use of land, preserves open space, and proceeds in accordance with the goals of the Town Plan.

Density-based zoning specifies the number of dwelling units allowed per given land area. For example, in the PAR district, one dwelling is allowed per five acres of land. The conventional, five-acre minimum zoning would require that a 20-acre parcel be divided into four equal 5-acre lots. Density-based zoning also allows four dwellings on a 20-acre parcel, but allows the individual lots to be of varied size -- to take best advantage of the terrain or the water-supply or septic possibilities, for example. Furthermore, under density-based zoning, the building lots need not consume all of the land in the available parcel, provided that the remainder of the land is protected from development. Thus, a 20-acre parcel could, for example, be divided into four one-acre building lots and leave a protected 16-acre piece that might continue in productive farm or forest use.

Flexible land development under density-based zoning regulations is best accomplished using the provisions of the Planned Unit Development, as described in Article III, Section 305. Where development under the density-based criteria calls for the protection of open space from future development, protection may be accomplished by appropriate covenants, by sale of development rights to a land trust, or by other legal means. The means of protection shall be made a part of the Town land records of the land in question.

Table 206.4 - Planned Agricultural Residential District (PAR)

(D) Dimensional Standards (unless otherwise specified by use type):

Maximum Development Density	1 use per 5 acres
Maximum Building Envelope	30,000 S.F or the minimum amount of land necessary to site a septic system and water system which ever is greater



Density-based zoning works whether an entire large parcel is being subdivided and developed, or whether lots are subdivided off a parent parcel one or two at a time over a number of years. Property owners have more flexibility to subdivide and develop their property based on its characteristics and how they want to use the land than they would have with a large minimum lot size.

While density-based zoning offers property owners flexibility, it does not require creation of small lots, clustering development to conserve open space, protection of natural resources, etc. On its own, density-based zoning cannot be guaranteed to achieve the goal of protecting rural character and natural resources. Density-based zoning is also somewhat more complex to administer than conventional zoning.

Further, the benefits of density-based zoning would not apply if Richmond's current one-acre minimum lot size was directly translated a density of one home per acre. Density in the rural areas of town would need to be reduced to make the most effective use of this zoning technique.



Sample Density-Based Language for Richmond

3.1.3 Dimensional Requirement For lots in the A/R District - No Zoning Permit may be issued for Land Development in the A/R District unless the lot proposed for such Land Development meets the following dimensional requirements:

- a) Residential Density - One (1) dwelling unit per 10 acres.
- b) Lot Area - No lot shall be less than one (1) acre.

Notes: In a density-based zone, the density of non-residential land uses is commonly controlled through minimum lot size, lot coverage, floor area ratio (FAR) and/or building footprint standards.

A density of one home per 10 acres is commonly considered the minimum necessary to maintain rural character.

Sliding-Scale



The basic system of density-based zoning can be modified to better achieve town goals such as limiting fragmentation of large tracts of land, promoting new development in areas where some development has already occurred, reducing the overall amount of development, or discouraging large-scale rural subdivisions. Sliding-scale density is a type of density-based zoning that establishes different underlying densities based on criteria such as size of the parent parcel, size of the lot being subdivided or the number of lots to be subdivided.

- Middlebury has used a sliding scale to set the density of parcels in its Agricultural Rural Residential district for more than 20 years. The larger the parent parcel, the lower the overall density. The largest parcels in the district have a density of one home per 25 acres, while the smallest parcels have a density of one home per two acres.
- Starksboro has a sliding scale that requires a minimum set aside based on the size of the lot(s) being created through subdivision. Smaller lots have a reduced set aside requirement and therefore a higher overall density.
- Warren has a sliding scale in its Rural Residential district that is based on the number of lots in the proposed subdivision. The maximum density of a three-lot subdivision is one home per acre, while the maximum density of a 20-lot subdivision is one home per five acres.

Towns using an acreage-based sliding scale typically set the density of the entire parcel at the time of the first subdivision so that property owners cannot divide a larger tract into several smaller parcels in order to achieve a greater allowable density when the resulting smaller lots are later resubdivided. This sliding scale based on the number of lots being created would need some limitation on the number of lots that can be subdivided in a specified period. Some Vermont towns have

incorporated a system similar to that used by Act 250, which considers the number of lots subdivided by an owner over a five-year period, to prevent creating a loophole that allows developers to circumvent the intent of the zoning.



Sliding scales should not be copied from another municipality, but should be calibrated based on local conditions to achieve the specific planning goals of a town. A build-out analysis can be used to test various alternative scales and can show how effective a system would be at achieving desired development patterns.

While a sliding scale can be constructed to better address specific town goals such as limiting fragmentation of large parcels or discouraging large-scale developments in rural areas, overall the system has similar pros and cons to the basic density-based zoning technique. Further, some landowners may view the system as inequitable since property is being granted different levels of development potential based on factors that might not directly affect the suitability of the land for development.



Middlebury Land Use Regulations (2008)

SECTION 620. Schedule A: Agricultural/Rural Residential District Density

Parcel Area (Acres)	Maximum permitted number of lots (counting existing & new home sites)
0 - 3.9	1
4 - 24.9	2
25-49.9	3
50-74.9	4
75- 99.9	5
100 - 124.9	6
125 - 149.9	7
150 - 174.9	8
175 - 199.9	9
Etc.*	Etc.*

**Each additional 25 acres is allotted an additional home site.*

Suitability for Development or Feature-Based Zoning



Another variant of density-based zoning takes the environmental and/or geographic characteristics of a specific piece of property into consideration in order to establish its maximum development potential. Those properties with few constraining factors would be granted a higher density of development than those with greater constraints.

A number of Vermont towns have used a system that defines what lands are considered “undevelopable” and subtracts those from the parcel’s total acreage before applying a minimum lot size or density to only the “buildable” land. Fairfax, Williston and Colchester have both incorporated provisions into their regulations that consider only the “buildable” land when determining how many lots may be subdivided from a parcel.

Norwich has taken this concept one step further by taking into consideration two other factors: distance to the village and the quality of the access. In order to determine the development potential of a parcel in Norwich’s rural areas, the acreage of steep slopes, floodplains, wetlands, surface waters and buffers are either completely or partially subtracted from the parcel’s total acreage. Then a factor is applied based on the type of road access and distance from Norwich village. The amount of “buildable” land is divided by the “location and access” factor to calculate the potential number of homes that may be built on the land. Densities in the rural district can range from one unit per two acres to one unit per 20 acres. The more distant a property is from the village and the more difficult it will be to access it, the lower the overall density that will be permitted.

This twelve-acre parcel includes five acres of wetlands. Instead of twelve acres, density would be based on seven acres ($12 - 5 = 7$). In a zone where one home is permitted per acre, the number of potential homes would be reduced from twelve to seven.



Fairfax Subdivision Regulations (2007)

SECTION 604. LOT LAYOUT

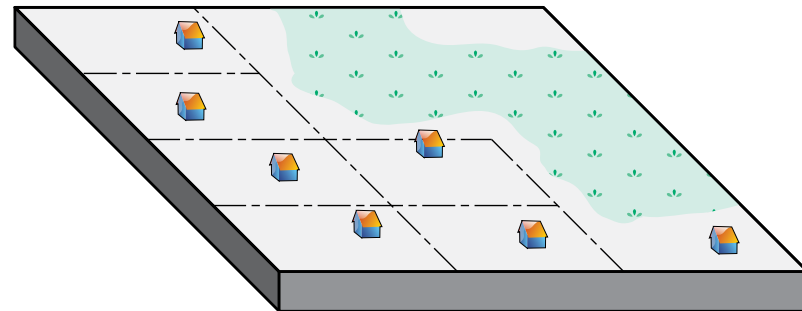
G. LOT SIZE AND DENSITY

1. Lot sizes and densities in the zoning bylaw are a minimum standard that will not always be possible to meet in a subdivision. Given the physical limitations to development on land in the town and the significant natural and agricultural resources in the town that are a high priority for protection in the Town Plan, lower densities may be appropriate and required in some cases.

2. The area within a subdivision that falls under the following categories shall not be considered in the calculation of land available for development based on the density requirements of the Zoning Bylaws:

- Subject to an easement which would prevent construction within the easement area.
- Required for public roads, private roads, or public recreation.
- Undevelopable because of state wetland or other environmental regulations.
- Unsuitable for development because of steep slopes of 25% or greater (see section 604I).
- Located in a flood plain.
- Otherwise undevelopable because of local, state, or federal regulations.

The Development Review Board may waive this requirement in part or in whole when the subdivision is designed as a Planned Unit Development (PUD), and in the judgment of the Development Review Board the design of the PUD adequately protects these resources.





Norwich Subdivision Regulations (2006)

SECTION 3.2 DETERMINATION OF ALLOWABLE DENSITY

(B) Rural District. In accordance with Section 6.4 of the Norwich Zoning Regulations, the maximum number of lots created within the Rural Residential District after the effective date of these regulations shall be determined as set forth below.

(1) Minimum Lot Size. The minimum lot size within the Rural Residential District shall be not less than 20,000 square feet, unless the lot is part of a Planned Unit Development or Planned Residential Development approved by the Development Review Board in accordance with the Norwich Zoning Regulations, in which case the minimum lot size shall be as determined by the Commission. In the event the proposed lot size is less than the maximum density, the balance of the land shall be reserved as open space in accordance with Section 3.10 (e.g., if the maximum allowable density is one unit/lot for every 10 acres and the proposed lot size is one acre, an additional 9 acres must be reserved as open space and may be held in common or remain with another lot).

(2) Maximum Density. Except as provided in subsection (D) of this section below, the maximum density (total number of units/lots allowed on any pre-existing parcel) shall be as determined by the Development Review Board in accordance with this section of the regulations. The total maximum density shall range from a maximum density of one unit per every 2 acres of developable area to one unit per every 20 acres of developable area, based upon the formulas set forth in Tables 3.1 and 3.2.

(3) Determination of Developable Area. It is the intent of these regulations to limit development density on parcels on which fragile features and critical natural resources are located. To achieve this intent, development density shall be calculated based upon the total amount of developable area found on the pre-subdivision parcel. The developable area shall be determined by excluding certain non-developable features from the density calculations, and by reducing the amount of area that other important, albeit less fragile, features may be applied to the density determination.

The total developable area shall be based upon the formula described in Table 3.1. In determining the amount of developable area located on a parcel during preliminary plan review, the Norwich Planning and Zoning office shall provide, at the applicant's request, an indication of the location and total area (in acres) of each of the features identified in Table 3.1. The indication shall be based upon the most up-to-date data coverages available in the Town's Geographical Information System (GIS) program. The applicant may choose to provide data, prepared by a licensed engineer or surveyor, providing a more accurate indication of the features indicated in Table 3.1 and use such data as the basis of the determination of developable area. In the event the Development Review Board, as a result of site investigation, determines that the Town's GIS data may not accurately identify features found on a site, the Commission may require the applicant to provide more detailed information regarding one or more of the features included in Table 3.1.

(4) Determination of Development Density. In accordance with the Norwich Town Plan, it is the intent of these regulations to maintain low development densities in areas of Town with limited and/or poor access to Town facilities and services, to maintain low development densities contiguous to significant public lands and open spaces, and to encourage moderate to high densities in areas of Town with good access to Town facilities and services and close proximity to the village center.

Rather than designating multiple zoning districts within the designated Rural Residential District, maximum density shall be based upon the unique characteristics of the parcel relative to highway access, distance to the town center, and proximity to protected open space. The total development density of a site shall be presumed to be one unit per every 2 acres of developable area, although the density shall be adjusted in accordance with the formulas set forth in Table 3.2. In no instance shall the total allowable density be less than one unit per every 20 acres of developable area.

Norwich Subdivision Regulations (2006)

Table 3.1 Determination of Developable Area		
Physical Features Found on Parcel	Developable Area Adjustment	Example 100 acre parcel
Slopes in excess of 25%	no credit	10 ac = 0 ac Developable Land
100 year floodplains	no credit	10 ac = 0 ac Developable Land
Wetlands and surface waters	no credit	20 ac = 0 ac Developable Land
Setback areas from wetlands and surface waters	50% credit	10 ac = 5 ac Developable Land
Slopes between 15% and 25%	50% credit	10 ac = 5 ac Developable Land
All Other Land	100% credit	40 ac = 40 ac Developable Land
Total 100 acre parcel	-	100 ac = 50 ac Developable Land



While this type of system could be customized to specifically address local planning goals, it is more complex to administer. The constraining factors to be used in the formula should be limited to those that are readily available in GIS format. Applicants can rely on existing GIS information about their property or they have the option of submitting professionally prepared studies to more precisely calculate the acreage of constrained land. Currently Richmond does have GIS capability within its Planning and Zoning Department, so is better positioned to administer this type of system than many rural towns. As in Norwich, the town would need to provide landowners with administrative support to help them calculate the development potential of their property.

A build-out analysis would also be useful in calibrating this type of density-based zoning for Richmond. While this type of system may most directly address the town's planning goals and respond to the characteristics of individual parcels of land, it would likely be unsettling for some landowners to not be

Norwich Subdivision Regulations (2006)

Table 3.2 Determination of Development Density		
Parcel Location	Density Adjustment	2 acre maximum density x density adjustment
A. Proposed Driveway or Development Road accessing:		
State Highway or Paved Class 2 Road	x 1	2 x 1 = 2 acres
Paved Class 3 Road	x 1	2 x 1 = 2 acres
Gravel Class 3 Road	x 2	2 x 2 = 4 acres
Substandard Class 3 Road (as identified by Town)	x 4	2 x 4 = 8 acres
Class 4 Road	x 6	2 x 6 = 12 acres
B. After adjusting for access, adjustments shall be made for travel distance from the Norwich Town Office measured to the nearest part of the parcel having 50 feet of frontage along a town or state highway by the most direct route using town or state highways.		
Less than 1.5 miles	x 1	2 x 1 = 2 acres
1.5 to 3 miles	x 1.5	2 x 1.5 = 3 acres
3 to 4.5 miles	x 2	2 x 2 = 4 acres
4.5 to 5.5 miles	x 2.5	2 x 2.5 = 5 acres
5.5+ miles	x 3	2 x 3 = 6 acres
C. After adjusting for access and travel distance, the maximum density shall be made for proximity to significant public lands/open spaces		
Not contiguous to (does not share boundary with) Norwich Fire District Agreement Lands or Appalachian Trail Corridor	x 1	2 x 1 = 2 acres
Parcel has a shared boundary with Appalachian Trail Corridor or the Norwich Fire District Agreement Lands	x 2	2 x 2 = 4 acres
Finally, the maximum allowable density shall be as adjusted, or 1 unit for every 20 acres of developable area, whichever achieves the highest density.		

able to look at the land use regulations and quickly determine what can be done with their property. If a build-out analysis was done in advance, initial calculations could be available for landowners to review.



Sample Density-Based Language for Richmond

A/R District. The maximum number of lots created within the A/R District after the effective date of these regulations shall be determined as set forth below:

(1) Minimum Lot Size. The minimum lot size shall be one (1) acre, unless the lot is part of a Planned Unit Development (PUD) approved under Section 5.12.

(2) Maximum Density. Except as approved as part of a PUD, the maximum density (total number of units/lots allowed on any pre-existing parcel) shall be as determined by the Development Review Board in accordance with this section of the regulations. The total maximum density shall range from a maximum density of one unit per every two (2) acres of developable area to one unit per every 25 acres of developable area, based upon the formulas set forth in Table A.

(3) Determination of Developable Area. It is the intent of these regulations to limit development density on parcels characterized by important natural resource, primary agricultural soils and fragile features. Therefore, maximum density shall be calculated based upon the total amount of developable area found on the parent parcel. The developable area shall be determined in accordance with the formulas set forth in Table A. The Richmond Planning and Zoning office shall provide, at the applicant's request, an indication of the location and total area (in acres) of each of the features identified in Table A. The indication shall be based upon the most up-to-date data coverages available in the town's Geographical Information System (GIS). The applicant may choose to provide a more accurate indication of one or more of the features listed in Table A resulting from field work completed by a qualified professional.

(4) Determination of Development Density. In accordance with the Richmond Town Plan, it is the intent of these regulations to maintain lower development densities in outlying areas of town and in those areas characterized by limited and/or poor access, while encouraging higher densities in areas of town with good access to Richmond Village and the town's major transportation corridors. The total development density of a site shall be presumed to be one unit per every two (2) acres of developable area, although the density shall be adjusted in accordance with the formulas set forth in Table A.

Table A
Sample Density Calculation

1. Total acreage of parcel to be developed/subdivided	=	100.00	acres
2. Natural constraints on the parcel to be developed/subdivided:			
Flood hazard area	5.00 acres X 100%	=	5.00 acres
Fluvial erosion hazard area	5.00 acres X 100%	=	5.00 acres
Steep slopes (30% or greater)	1.50 acres X 100%	=	1.50 acres
Surface waters and wetlands	7.50 acres X 100%	=	7.50 acres
Moderate slopes (15% - 29%)	3.00 acres X 50%	=	1.50 acres
Riparian and wetland buffers	2.50 acres X 50%	=	1.25 acres
Primary agricultural soils	25.00 acres X 25%	=	6.25 acres
Total reduction in buildable acreage		=	28.00 acres
3. Total buildable acreage	100 - 28	=	72.00 acres
4. Density adjustment factor:			
A. Access to the parcel			
Paved state road or town class 1, 2 or 3 road	= 1	=	3
Gravel town class 1, 2 or 3 road	= 3		
Other	= 10		
B. Travel distance to village intersection or I-89 interchange (whichever is less)			
Less than 1.0 miles	= 1	=	5
1.0 to 1.4 miles	= 3		
1.5 to 2.4 miles	= 5		
2.5 to 4.9 miles	= 10		
5.0 miles or more	= 15		
Total density adjustment factors		=	8
5. Calculated Density	72 acres ÷ 8	=	9 lots / units



4. Establish a maximum lot size to slow fragmentation of rural land.

Whether or not changes in density are desired, Richmond could slow the rate at which its working lands and open space are being converted to residential lots by establishing a maximum lot size in rural areas.



As the analysis of Richmond’s grand list shows, 83 percent of the town’s land already subdivided into residential lots is in parcels of five acres or greater in size. However, those lots only account for 23 percent of the town’s homes. The median size of a new lot subdivided in Richmond’s rural areas in recent years has been 4.5 acres (the mean has been nine acres due to the creation of several very large lots).

While this zoning technique is not commonly used in Vermont, it has been used successfully in other parts of the country. It has been widely used, in combination with a low overall density, in Lancaster County, Pennsylvania, which has been in the vanguard of agricultural zoning for more than two decades. Maximum lot sizes have been considered by several Vermont towns and a few do have maximum lot size requirements for lots created as part of a planned unit development (PUD).

When a maximum lot size is implemented, it is often in conjunction with density-based zoning for the purpose of limiting the fragmentation of large tracts of farm or forest land. The maximum lot sizes established in rural areas are commonly between one-half to two acres and are often linked to the minimum lot size needed to accommodate on-site water and/or wastewater systems.



If the overall density requirements are not changed, this option would not reduce the total amount of development that could potentially occur in Richmond’s rural lands. Whether or not

the underlying density is changed, a maximum lot size could limit fragmentation of the town’s rural and natural resources, at least in the near-term. To be effective, the maximum lot size would need to be relatively small.

One issue with all the techniques that promote small lot sizes is that such lots may not be attractive to households choosing to live in a rural area. Those moving into rural areas often want a larger amount of land, whether for a sense of privacy, for recreation, or for keeping animals.



Rapho Township, PA Agricultural Zone

SECTION 201.7. Area and Design Requirements

Use: Single-family, detached dwellings

Minimum Required Lot Area: 1 acre

Maximum Permitted Lot Area: 2 acres

The maximum lot area shall not apply if the applicant can demonstrate by credible evidence that the area proposed for the dwelling lot (1) does not predominantly consist of Class I, II and/or III soils, as identified in the soil survey, or (2) is generally unsuitable for agricultural purposes.



Sample Maximum Lot Size for Richmond

3.1.3 Dimensional Requirement for Lots in the A/R District - No Zoning Permit may be issued for Land Development in the A/R District unless the lot proposed for such Land Development meets the following dimensional requirements:

- a) Lot Area - No non-farm residential lot shall be greater than two (2) acres or less than 0.5 acres. All other lots shall not be less than one (1) acre.

Notes: A maximum lot size would not prevent development of a pre-existing larger lot in accordance with all other relevant portions of the regulations.



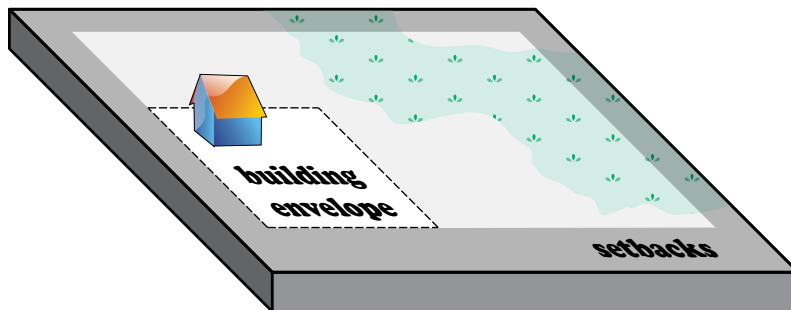
5. Use building envelopes to specify where development can occur on rural lots.

Richmond could limit the developable portion of large lots and better protect rural and natural resources by requiring the designation of building envelopes for all newly created rural lots.



Building envelopes are a mechanism for designating the area on a lot where development can occur and are more effective than setback requirements on large lots. Areas outside the building envelope generally remain undisturbed by development, although regulations may include provisions for roads/drives, utilities or infrastructure to be located outside the envelope. Building envelopes are frequently used in conjunction with clearing limits that prevent extensive tree removal associated with the development of wooded parcels.

Richmond's subdivision regulations reference building envelopes, but there are no standards guiding their size or location. Building envelopes are commonly used in Vermont and a number of communities specify a maximum size for building envelopes and/or identify natural features that should not be developed such as:



- Williston's Agricultural and Rural Residential district, which requires most new lots to have a "designated home site" not to exceed a half acre. The land outside that half acre cannot be cleared and the regulations specify that all construction except access driveways, utility lines, and the underground components of on-site wastewater disposal systems be within the designated home site.
- Fayston's Soil and Water Conservation district, which requires a maximum building envelope of 25,000 square feet or the minimum required for water and septic. The regulations further specify that envelopes should be located and configured to avoid any adverse impact to wetlands, floodplains, streams and rivers, steep slopes, prominent hilltops and ridgelines, critical wildlife habitat, historic and archaeological resources, and open farmland and agricultural soils.



Requiring a small building envelope in rural areas has many of the benefits of requiring small lots, particularly if combined with a large minimum lot size or low residential density. It offers rural residents the opportunity to own more acreage, and it may be easier to adopt into the regulations than a maximum lot size. It does not, however, limit the fragmentation of working lands as effectively as a small maximum lot size or a very large minimum lot size.



Sample Building Envelope Provision for Richmond

Establishment of Building Envelopes - On all subdivision plats and site plans, the DRB shall require the designation of building envelopes to identify and limit the location of structures, parking areas and associated site development (excluding roads, utilities & the underground components of wastewater systems) on one or more portions of a lot. The size and shape of building envelopes shall at a minimum be determined by district building envelope requirements or if not specified, district setbacks. The DRB may further restrict the size or location of building envelopes as necessary to meet the standards set forth in these regulations.



6. Allow for agricultural-related and natural resource-based businesses in rural areas.

Richmond could promote the economic viability of farming and forestry in its rural areas by allowing for a greater range of business opportunities associated with agriculture or forest resources.



Farming and forestry are businesses and if they are profitable, rural property owners will be less likely to sell their land for development. To increase profitability, farmers and foresters are increasingly looking for opportunities to diversify their operations in order to reduce their dependence on a single product and/or to add value to their raw products or materials before sending them to market. Further, in order to remain economically viable farming and forestry require access to a network of supporting businesses such as equipment sales and repair services, feed and fuel suppliers, sawmills, veterinarians, slaughterhouses, processing plants, trucking companies and storage facilities, specialty retail markets, etc.

Frequently, zoning in rural towns does not allow for many of the types of add-on or supporting businesses critical to the economic success of their primary industries - farming and forestry. Currently Richmond allows the following commercial uses in its Agricultural / Residential district: artist/craft studio, day care center, extraction, inn or guest house, kennel, museum, small professional office or personal service, and outdoor recreation.

The regulations provide two other opportunities for commercial activities in the district - adaptive reuse and cottage industry. The adaptive reuse provision provides some flexibility for commercial uses of an historic structure, including barns, such as an antiques shop, woodworking, restaurant, agricul-

tural product sales etc. The cottage industry provision allows for small-scale businesses, but they must be operated from the property on which their owner resides, and there are limitations on the number of employees and the amount of traffic that can be generated.



Broadening the allowable uses of rural land to include more commercial activities associated with or supporting farming and forestry could provide property owners with more options for using and deriving economic value from their land. This might offset some of the perceived “loss of value” associated with any reduction in the residential density allowed in Richmond’s rural areas. As with commercial and industrial uses elsewhere in town, the regulations would need to include standards to prevent adverse impacts to the environment, to the town’s road network and to the quality of life for nearby residents.



Potential Rural Businesses in Richmond

Farm-Based Business - Similar to a cottage industry, but based on a farm parcel and potentially larger in scale or intensity. It should be related to or supportive of agricultural activities. May include uses like processing of manure or compost, slaughtering, processing and manufacturing of value-added products, packaging, storage and shipping of products, etc.

Farm Product Sales - More than a seasonal farm stand, this type of retail or wholesale business may be open year-round, may include processed products, may include products from multiple farms, etc.

Agri-Tourism - May include lodging, dining, recreation, education, etc. with an agricultural orientation.

Renewable Resource-Based Energy Generation - May include uses related to on-farm energy generation (wind, methane, etc.), bio-fuels, bio-mass, etc.

Wood Processing and Sales - May include sawmills, firewood operations, lumber mills, lumberyards, etc.

VILLAGE AREAS



7. Draft more descriptive purpose statements for the village districts.

Richmond's land use regulations require new development to be compatible with the "character of the area." The desired character is defined generally in the town plan and could be defined more specifically in the zoning district purpose statements.



Richmond's Town Plan describes the village areas as encompassing "the historic municipal boundaries of the incorporated Village of Richmond south of I-89 as well as the areas developed for schools, and the Jonesville area" but current zoning district lines do not align with the former village boundary.

The Town Plan states that "These areas will continue to serve as the focal points for the Town's commercial and civic activities as well as provide a variety of housing options." It also states that "Priorities for these areas include restoration and reuse of existing structures, maximizing the use of public facilities and services, creating a pedestrian-friendly atmosphere, and fostering a vibrant commercial/residential center."



It is clear that the Town Plan is calling for the maintenance of village character, but the concepts referred to - compact, pedestrian-friendly, mixed-use - are not specifically defined. The zoning district purpose statements can be used to describe the interrelated elements that form the town's village character. The sample language that follows is based on three land use patterns that exist in Richmond's village areas, but should not be interpreted as directly referring to existing zoning districts.



Richmond Zoning Regulations (2009)

3.2 High Density Residential District (HDR). Purpose. The standards of this district are designed to promote the higher density housing that is characteristic of village centers and growth areas. The efficient use of infrastructure will be served by allowing closer placement of residential units, with neighborhoods located close to the retail services of the commercial district. This proximity allows for energy-efficient pedestrian traffic, roadways and school bus traffic. Planning for road crossings, sidewalks, curbside trees, bikeways, pocket parks and recreational activities, and other amenities will be crucial to maintaining an inviting atmosphere while encouraging high density residential growth. Various types of residential units may be permitted in a Residential PUD within the HDR district. Traditional spacing and setbacks for housing shall be maintained to preserve the integrity of the New England village atmosphere. Home occupations within residences, day care facilities, proximity to schools and civic institutions, pedestrian pathways to essential services and close-knit residential groups constitute the "character of the neighborhood."

3.3 Residential / Commercial District. Purpose. The standards of this district are designed to allow residential use and residential-compatible commercial use to co-exist in a traditional village style; to allow for the transition of residences to residential-appearing businesses in the "downtown village" area; and to encourage flexibility of economic development while protecting existing residences. The "character of the neighborhood" is primarily residential, with the addition of residential-compatible retail uses to uses found in other residential districts. Businesses shall resemble residences in size and architectural characteristics. Traditional spacing and setbacks for housing shall be maintained to preserve the integrity of the New England village atmosphere. Home occupations within residences, day care facilities, proximity to schools and civic institutions, pedestrian pathways to essential services and close-knit residential groups constitute the "character of the neighborhood."

3.5 Village Commercial District. Purpose. The standards of this district are designed to retain and provide areas for the sale of retail or wholesale of those types of goods and services required by the residents of the community. Strip development with multiple curb cuts is discouraged. An attractive, pedestrian friendly, compact area of retail operations is encouraged. Parking and traffic flow shall be considered as part of the site plan review process for any Land Development in this district. Residential uses that are compatible with a village commercial district will be permitted after conditional use approval and site plan review.



Draft Purpose Statement for Richmond's "Downtown Business District"

(A) Purpose. The purpose of this district is to implement the goals and policies of the Richmond Town Plan as most recently amended. The Town Plan calls for Richmond Village to continue to serve as the commercial and municipal center of the town and for Richmond to:

- (1) Maintain the historic village pattern essential to the quality of life in Richmond, which is threatened by suburbanization and auto dependence.
- (2) Promote village-scale development.
- (3) Promote a mix of residential and commercial uses in village areas.
- (4) Largely concentrate residential development within village areas and other designated areas to conserve the town's rural character.
- (5) Recognize that the commercial success of the village is vital to the economic and cultural health of the town.
- (6) Alleviate traffic congestion and its impacts in the village, while maintaining the dynamic commercial, civic and residential character of the village.
- (7) Provide adequate parking in the village to support the commercial center.
- (8) Protect the architectural integrity of village-area homes and other historic structures.
- (9) Maintain the traditions that encourage small town neighborliness and civic involvement.

(B) Character of the Neighborhood. As described in the Richmond Town Plan, the desired character of this zoning district is that of a small, traditional New England village downtown, which has:

- (1) A mix of uses in close proximity to each other bringing people together for a variety of activities –including town affairs, work, living, recreation, business, shopping, and entertainment – attracting and benefiting people of all ages and income levels.
- (2) A physical layout with higher densities in comparison to outlying areas and a distinct, defined identity or sense of place.
- (3) A pedestrian-friendly environment in which most uses are within a five- or ten-minute walk (1,500 to 3,000 feet) of each other and a multi-modal transportation system that is designed for pedestrian safety and vehicular access.
- (4) An atmosphere that is friendly and inviting, which encourages people to get out of their cars and walk around.
- (5) Interconnected, tree-lined streets, and short and/or irregularly shaped blocks.
- (6) On-street parking and limited amounts of land devoted to parking as visible from the street.
- (7) A strong public presence, such as greens or parks, municipal buildings, post office, library, or other public spaces or buildings, and a presence of special features, such as historic buildings, landmarks and views.
- (8) Multi-story buildings that maximize the use of vertical space while maintaining a human scale at street level.
- (9) Buildings located close to the street, built at the street line or with very shallow setbacks that match historic setbacks.
- (10) Principal buildings closer to the street than associated accessory buildings (such as garages) and service areas that are largely invisible from the street.
- (11) Buildings whose main entrance is oriented to the street and whose windows or architectural detailing provide interest to the streetscape.

Notes: The "downtown business district area" includes the core of existing commercial and civic buildings in Richmond Village. Incorporating specific language from the Town Plan into the district purpose statement is a way to strengthen the link between the plan and the land use regulations. The definition of "character of the area" can be referred to during development review proceedings and should offer a framework for discussing whether the character of proposed development will be compatible with the desired character of the district.



Draft Purpose Statement for Richmond’s “Mixed-Use Corridors”

(A) Purpose. The purpose of this district is to implement the goals and policies of the Richmond Town Plan as most recently amended. The Town Plan calls for Richmond Village to continue to serve as the commercial and residential center of the town and for Richmond to:

- (1) Maintain the historic village pattern essential to the quality of life in Richmond, which is threatened by suburbanization and auto dependence.
- (2) Promote village-scale development.
- (3) Promote a mix of residential and commercial uses in village areas.
- (4) Largely concentrate residential development within village areas and other designated areas to conserve the town's rural character.
- (5) Recognize that the commercial success of the village is vital to the economic and cultural health of the town.
- (6) Alleviate traffic congestion and its impacts in the village, while maintaining the dynamic commercial, civic and residential character of the village.
- (7) Provide adequate parking in the village to support the commercial center.
- (8) Protect the architectural integrity of village-area homes and other historic structures.

(B) Character of the Neighborhood. As described in the Richmond Town Plan, the desired character of this zoning district is that of a mixed-use neighborhood located along a main travel corridor where most buildings appear to be traditional single-family homes, but some may house small-scale commercial uses or multiple households. It should be a place that has:

- (1) A mix of uses in close proximity to each other bringing people together for a variety of activities –including town affairs, work, living, recreation, business, shopping, and entertainment – attracting and benefiting people of all ages and income levels.
- (2) A physical layout with higher densities in comparison to outlying areas and a distinct, defined identity or sense of place.
- (3) A pedestrian-friendly environment in which most uses are within a five- or ten-minute walk (1,500 to 3,000 feet) of each other and a multi-modal transportation system that is designed for both pedestrian safety and vehicular access.
- (4) Interconnected, tree-lined streets, and short and/or irregularly shaped blocks.
- (5) Limited amounts of land devoted to parking as visible from the street and no parking in front yards.
- (6) Buildings with narrow setbacks that match historic setbacks.
- (7) Principal buildings closer to the street than associated accessory buildings (such as garages) and service areas that are largely invisible from the street.
- (8) Buildings whose main entrance is oriented to the street.
- (9) The minimum signage necessary to identify non-residential uses and direct travelers designed, scaled and located to maintain the corridor's visual character as a residential street.

Notes: The “mixed use corridors” would include the areas of the village, outside the business district, with frontage on main travel corridors. These areas are currently developed with a mix of residential and commercial uses. Incorporating specific language from the Town Plan into the district purpose statement is a way to strengthen the link between the plan and the land use regulations. The definition of “character of the area” can be referred to during development review proceedings and should offer a framework for discussing whether the character of proposed development will be compatible with the desired character of the district.



Draft Purpose Statement for Richmond’s “Village Residential Neighborhoods”

(A) Purpose. The purpose of this district is to implement the goals and policies of the Richmond Town Plan as most recently amended. The Town Plan calls on Richmond to promote residential development within or adjacent to the village in order to conserve the town’s rural character. New development within this district should respect the traditional pattern and scale of development while accommodating a wide range of building types, including attached and multi-family housing. Narrow interconnected streets, sidewalks, narrow frontages and small- to medium-sized blocks should characterize future development. The public infrastructure available within the district will support compact development. In order to maximize use of existing infrastructure, lower density land use will be discouraged. While primarily residential in character, this district should also accommodate limited, small-scale non-residential uses, especially those operated from residential property, which do not disrupt the quality of life in the neighborhood.

(B) Character of the Neighborhood. The desired character of this zoning district is that of the traditional residential neighborhoods, built before 1940, which extend outward from New England village downtown business districts. Neighborhoods within this zoning district should:

- (1) Be compact and walkable from end to end. A walkable neighborhood is defined by the distance a person can walk in about 10 minutes.
- (2) Offer variety and variability. Neighborhoods may have a diversity of housing types with dwelling unit and lot sizes that vary to cater to multiple market segments. Differences in building design, architectural detail, landscaping, and side yard setbacks should break the mold of a suburban, cookie-cutter development pattern.
- (3) Have a network of interconnected streets with few dead ends. Streets should be narrow and designed to minimize speeding and through traffic. Streets should respond to the natural contours of the land, but suburban-style curvilinear streets and cul-de-sacs should be avoided. Neighborhood streets should have sidewalks on at least one side.
- (4) Support Richmond village’s recognizable identity and sense of place, which includes a physical layout with higher densities in comparison to outlying areas and a distinct, defined geographical edge.
- (5) Have a human scale that makes people feel comfortable in them. Civic amenities, such as landscaped streets, shaded sidewalks, community gardens and open space, should enrich the quality of life in these neighborhoods.
- (6) Provide for both public interaction and personal privacy through their streets, pedestrian network and lot design. The ‘public face’ of most houses (front door, porch, front yard) should face the street, providing opportunity for chance meetings with neighbors. Most dwellings should include some private outdoor space. There should be places for planned meetings and community gatherings, such as greens or parks, interspersed throughout the neighborhoods.
- (7) Offer a connection to nature through a consciously designed open space system. The open space system should be made up of formal elements (tree lined streets, walkways, parks, greens, gardens), recreational elements (playgrounds, fields, courts) and informal elements (paths, buffer zones, wildlife habitat, preserved natural features, scenic views). All three types of open space are critical to creating a ‘livable’ neighborhood that balances the public with the private, and the convenient access of a village center with the natural beauty and tranquility of a small town.

Notes: The “village residential neighborhoods” would include the residential neighborhoods that extend outward from the village business district that are located within the town’s sewer service area. The definition of “character of the area” can be referred to during development review proceedings and should offer a framework for discussing whether the character of proposed development will be compatible with the desired character of the district.



8. Revise density and dimensional requirements in village districts.

The density and dimensional requirements of Richmond's village districts could be revised to better match the existing development pattern and/or allow for greater density within the village.



Currently, Richmond has a minimum lot size of one-third to two-thirds of an acre for all land in its village zoning districts that is served by municipal or community water and wastewater systems (some land within the limits of the former village are zoned Agricultural-Residential and have a one-acre minimum lot size). However, many of the existing lots in the village area are smaller than current zoning would allow (orange lots on map below).

Similarly, village lots are required to have a minimum of frontage of 75 feet under the zoning. Many of the existing lots have around 50 feet of frontage. Setback requirements in the village districts also do not match the historic pattern, especially the front setback of 20 feet in the village business district where currently the buildings are built to the edge of the sidewalk.



Richmond's current minimum lot sizes and dimensional standards in its village districts raise two issues. First, much of the existing development is not "legal" under current regulations. This can lead to increased demand for variances and create unnecessary nonconformities that make administration of the regulations more difficult. Further, if an existing nonconforming structure is demolished, depending on the circumstances it may not be possible to replace it with another similarly sized and situated structure.

Richmond Zoning Regulations (2009)

Dimensional Requirements			
	V/C	R/C	HDR
Lot area (water/sewer)	1/3 ac	1/3 ac	2/3 ac
Lot area (no water/sewer)	1.0 ac	1.0 ac	1.0 ac
Lot frontage (min)	75 ft	75 ft	75 ft
Lot coverage (max)	50%	40%	40%
Front setback (min)	20 ft	20 ft	20 ft
Side setback, principal structure (min)	10 ft	10 ft	10 ft
Side setback, accessory structure (min)	5 ft	5 ft	5 ft
Rear setback, principal structure (min)	15 ft	15 ft	15 ft
Rear setback, accessory structure (min)	10 ft	5 ft	5 ft

Note: V/C = Village Commercial District, R/C = Residential / Commercial District, HDR = High Density Residential District





Left: A traditional residential neighborhood in St. Johnsbury with a density of more than 11 dwelling units per acre. Right: A new residential development in Longmont, Colorado with a density of nearly 9 dwelling units per acre, which was designed to be similar to the character of traditional neighborhoods. [Photos from Above and Beyond; Campoli and MacLean; 2007.]



The second issue relates to the ability to promote high-density development and infill development within the village as called for in the town plan. Municipal water and wastewater can support greater densities than allowed under current zoning. Richmond's wastewater treatment plant has an uncommitted reserve capacity of more than 135,000 gallons per day, which is the equivalent to the demand of nearly 650 homes (the plant is currently operating at near capacity by accepting septage from private haulers). A recent build-out analysis calculated that the town's current zoning would only permit a maximum of 300 more homes to be built within the zoning districts in the sewer service area. So, Richmond has the infrastructure capability to support higher-density development within its sewer service area than current zoning allows.



As shown in the photos above, it may be possible to achieve a density of 8 to 10 units per acre in residential neighborhoods while maintaining the character of a traditional village if there is sufficient control over the design and pattern of new development. Methods for increasing densities while maintaining village character include allowing the upper floors of commercial buildings to include dwelling units, the conversion of large single-family homes to multi-unit structures, the conversion of accessory structures into residential units, infill development on larger lots and the development of new multi-unit structures or higher-density homes.



While current zoning may require lower density development than Richmond’s traditional village settlement pattern, it also allows buildings to be constructed that would be larger than existing structures. Richmond relies on lot coverage to control the scale of development, which can allow for larger buildings on larger lots as shown below. In a village area, the maximum footprint of historic commercial buildings is typically less than 5,000 square feet, although multiple buildings may be attached to create larger commercial blocks.



Establishing maximum building footprints can restrict the scale of new development irrespective of the lot size.

Relationship Between Lot Size and Building Size

Lot Size	Lot Coverage	Building Square Footage
0.5 ac	x 40% = 8,712 sf	4,456 sf x 3 stories = 13,368 sf
1.0 ac	x 40% = 17,424 sf	8,712 sf x 3 stories = 26,136 sf
2.0 ac	x 40% = 34,848 sf	17,424 sf x 3 stories = 52,272 sf
5.0 ac	x 40% = 87,120 sf	43,060 sf x 3 stories = 129,180 sf
10.0 ac	x 40% = 174,240 sf	87,120 sf x 3 stories = 261,360 sf

Note: Assumes 50% of lot coverage will be used for parking and access drives.



Sample Maximum Footprint for Richmond

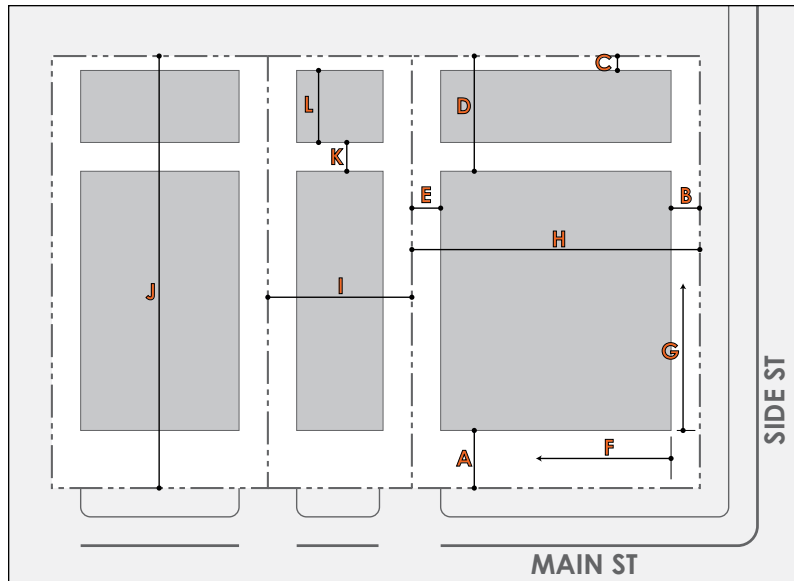
3.5.3 Dimensional Requirement for Lots in the V/C District - No Zoning Permit may be issued for Land Development in the V/C District unless the lot proposed for such Land Development meets the following dimensional requirements:

e) Building Footprint - No building shall be constructed with a footprint greater than 5,000 sq ft.

Note: The regulations could include waiver provisions to allow larger buildings for specific purposes (i.e., civic building or grocery store) or with additional design standards to ensure compatibility with historic development patterns.



Top: 1,600 square foot downtown retail building. Center: 9,000 square foot dollar store. Bottom: 45,000 square foot grocery store.



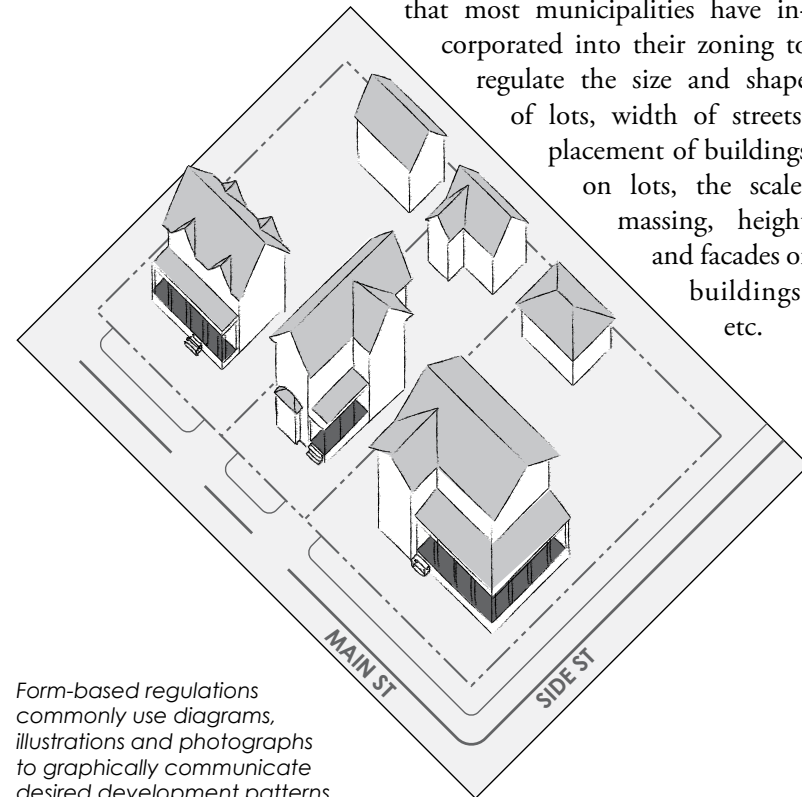
Building Placement		
Build-To Line (Distance from Property Line)		
A	Front	20 ft
B	Side Street	10 ft
C	Rear, Accessory Building	5 ft
Setback (Distance from Property Line)		
D	Side	8 ft min
E	Rear, Principal Building	40 ft min
Building Form		
F	Primary Street Facade built to Build-To Line	50% min
G	Side Street Facade built to Build-To Line	30% min
H	Lot Width	150 ft max
I	Lot Width	50 ft min
J	Lot Depth	150 ft min
K	Distance between Principal and Accessory Buildings	10 ft min
L	Depth of Accessory Buildings	30 ft max

Form-Based Zoning



Form-based zoning has emerged out of the “smart growth” and “new urbanist” planning movements and it is especially well-suited to village and urban settings. As the name suggests, form-based zoning is more focused on the physical characteristics of what is built and less with the use. The idea being that if the physical characteristics of the built environment are carefully regulated, any uses that can occur within the resulting buildings would generally be compatible with the overall character of the district.

Form-based zoning goes beyond the basic set of dimensional standards that most municipalities have incorporated into their zoning to regulate the size and shape of lots, width of streets, placement of buildings on lots, the scale, massing, height and facades of buildings, etc.



Form-based regulations commonly use diagrams, illustrations and photographs to graphically communicate desired development patterns.

While no Vermont communities have adopted a solely form-based approach into their regulations, a number have started expanding their use of dimensional standards in a manner derived from form-based codes. In addition to minimum frontages and setbacks, form-based regulations would generally include maximum frontages and setbacks or build-to lines (a line along which building must be built) as well to ensure a consistent pattern of lots and buildings along the street.

- South Burlington has begun incorporating form-based provisions into their regulations for the City Center area as part of their effort to change the character of this area from an automobile-dependent commercial strip to a pedestrian-oriented downtown.
- St. George is considering a more form-based approach as it is revising its land use regulations to promote development of the “village” that has been planned for its new town center land for more than 30 years.

One very useful provision common to form-based regulations is the establishment of a minimum height (i.e., 2 stories) in addition to a maximum height (i.e., 4 stories). This prevents the unfortunate demolition of a multi-story, attached building in a downtown commercial block so that a gas station or a stand-alone single-story retail store can be built on the site. Examples of that type of redevelopment and the resulting change in character can be found in many historic downtowns.

- Waitsfield has required new buildings to be a minimum of 1 1/2 stories tall in the Irasville and Waitsfield Village areas. This has resulted in the creation of several upper floor apartments over uses that typically would have been one story, such as a bank and a retail store, increasing the town’s affordable housing supply.



These new commercial buildings in Irasville were required to be two-story.



Richmond could inventory and document the current development pattern in the village area and revise its dimensional standards accordingly. The existing development pattern is likely to vary from one area in the village to another. The zoning district boundaries could also be examined once the inventory is completed as some revisions to the boundary lines may be warranted. Basing revised dimensional standards on local conditions and traditions, rather than copying them from other communities, should reduce concerns about allowing greater density within Richmond’s village areas.



9. Incorporate village design guidelines or standards into the regulations.

Richmond could use design guidelines or standards to illustrate the desired character for new development and renovations of historic buildings in village areas.



Design elements are critical to ensuring that new development is compatible with traditional character and building patterns. Many Vermont communities have been nervous about design review, thinking that they would become mired in debates about aesthetics, that another reviewing body would be needed (perhaps composed of design professionals), and that the review process would become more complex, expensive and time-consuming for applicants.

Considering design issues does not mean that all new buildings have to be painted one of five approved shades of white or that they have to replicate a historic architectural style. Design review can focus on the big picture (i.e., building scale, massing, placement on the lot) and some basic details (i.e., where is the front door, what is the pattern and shape of the windows, is there architectural interest on the façade).

Some Vermont municipalities have a formal design review process, with a separate Design Review Board. Most of these have adopted a design review district for a downtown/village center or special historic/scenic district. However, few Vermont towns have incorporated design standards or guidelines into their regular process for

reviewing site plans or conditional uses. As noted earlier, Vermont zoning regulations typically require new development to be “compatible with the character of the area,” but provide little specific guidance on how that phrase should be interpreted.

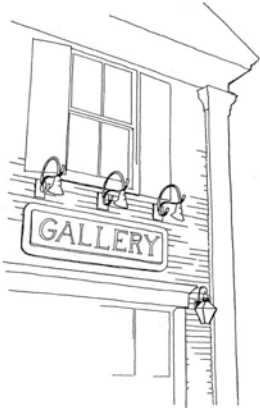


Design guidelines are an implementation tool that have been underutilized in Vermont. Design guidelines can help the development review board communicate up front what the town would like future development to look like instead of waiting until an applicant shows up with a plan and saying “no, that doesn’t look like it will be compatible.” Guidelines also provide board members with a framework for discussing and making decisions about design issues that can be more consistent and less open to real or perceived personal bias.

Integrated Lighting

Exterior light fixtures, whether purely decorative or lighting a sign, should complement the architectural style and color of the building. Consider the fixtures as part of the façade's composition and locate them as thoughtfully as one would other architectural elements.

Fixtures should cast light only where needed to minimize glare, and be no brighter than necessary.




Sample elements from Design Guidelines for Manchester's Commercial and Historic Districts.

Entrance Detail

Rely more on architectural features than on large signs to identify the entrance to a building.

Awnings or roofs for shelter, transom and/or side-lite windows surrounding the door, decorative lighting, door hardware, trim, and railings are examples of architectural details which help call attention to entrance doors. These details also help create a pedestrian-friendly transitional area between public and private space.





Vermont towns with design guidelines and a formal design review process include:

- Manchester drafted design guidelines in 2001 for use in conjunction with their formal design review process. The town credits their design manual with significantly reducing controversy during development review as potential developers understand the community's design goals.
- Bennington prepared a detailed handbook in 2006 that documents the built environment in their downtown, identifies desired improvements to enhance or restore the historic character, and provides guidelines for renovating and restoring historic buildings, as well as for infill and replacement of undesirable and/or non-historic structures.

Downtown Streetscape

To complement the architectural style and homogeneous setting within the downtown district, attention should be paid to the streetscape, including sections of Lake, Pratt, and Montgomery Streets. The streetscape in this district is an essential unifying element in the fabric of downtown. The Village's "Main Street" streetscape is a continuous front door to downtown and to the businesses that are located there. As one of the Village's most prominent features, it leaves an impression with visitors. As such, the elements that comprise the streetscape require careful consideration as public renovation and maintenance projects are proposed.

The elements that comprise the streetscape include:

Figure 40 — Streetscape Elements.



Sample design guidelines from Rouses Point, New York (bottom left) and Bennington, Vermont (below) show how historic and current photos can be used to illustrate design concepts.

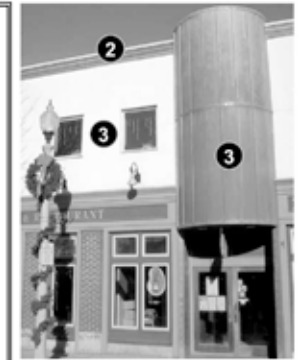


Contributes to sense of place & history

- A** Buildings maintain a consistent street wall, but with a sense of variety in height, shape and materials.
- B** Many buildings retain original materials and designs above the ground floor.
- C** Many buildings retain original cornices.
- D** Some original storefronts and entrances remain.
- E** Special buildings such as churches, schools and government buildings are an exception to the street-wall continuity, and are set back farther from the street to highlight their importance in the community.
- F** Different building designs sometimes work together to have common cornice lines or similar features.

Detracts from a sense of place & history

- 1** Some storefront windows, awnings and canopies not in keeping with building's overall character.
- 2** Lack of cornice design detracts from depth and 3-dimensional character of surrounding buildings.
- 3** Some buildings re-clad in modern materials which detract from sense of quality and character.



Photos: View looking west along Main Street (top); 428 Main Street (bottom).

Design guidelines typically include pictures or drawings that illustrate what the town wants and does not want. Design guidelines can be entirely “guidelines” – that is not mandatory and informational only – or they can include some “standards” or regulations that have to be complied with in addition to recommendations. The example to the right from Fowler includes both illustrated guidelines and regulatory standards.



While there are excellent models for village design guidelines available from communities around the country, they need to be carefully reviewed and modified to reflect local traditions and conditions.

Using local historic and current photos is an especially effective approach that ensures the guidelines reflect local development patterns. Looking back at historic photos of a village or downtown is a good way to identify the general characteristics and specific details that are unique to a community.

Combined with more detailed dimensional standards, some basic design standards often help ease worries among residents that new development and growth will completely change a village’s character and destroy its unique sense of place.



Fowler, Indiana Beautification and Design Guidelines

Design Guidelines - New Construction/Infill

New construction/infill in the downtown can have a good or bad result. Buildings which are constructed to match or reflect the context are positive additions to a historic downtown. New buildings which ignore height, width, scale, building lines, rhythm and the indigenous materials used by surrounding buildings are generally not good neighbors in the downtown.

Do:

- Use materials which match or complement surrounding buildings' patterns, color and appearance;
- Match the sizes, scale, rhythm of the windows and storefronts of neighboring buildings;
- Use signage which is not overpowering.

Don't

- Introduce materials which are not already found in buildings in the downtown;
- Use exotic shapes or patterns which will disrupt visual continuity;
- Try to imitate historic styles without professional assistance and thorough investigation of the scale, materials, proportions, and characteristics of that style. Some historic styles such as Colonial, Federal, and Beaux Arts are not appropriate in a downtown.

Site Plan Review Standards - Facades

It is particularly important that new construction meet minimum design criteria in order that it may blend with the surroundings. New construction shall be compatible with surrounding properties, in terms of formal characteristics such as height, massing, roof shapes and window proportions.

Where new construction is surrounded by existing historic buildings, building height and exterior materials shall be harmonious with those of adjacent properties. In the interests of maintaining a sense of history, vertical siding shall be prohibited, and synthetic siding shall imitate the character and dimensions of traditional clapboards. Masonry block buildings shall be faced in an appropriate material, such as horizontal wood siding or brick of a consistent traditional red color (not “used” brick or any varieties doctored to appear old), and have pitched roofs.



10. Review parking requirements in village areas.

Richmond could revise its parking standards and offer incentives to begin implementing the recommendations of its recently completed downtown parking study and ensure an adequate supply of parking while limiting its visual and environmental impacts.



Parking requirements often influence the pattern and density of development in village areas as significantly as the dimensional standards of the zoning district. Many zoning regulations establish minimum parking requirements that may be based on outdated data or data from communities that would not generally be considered comparable to small towns like Richmond.

In a village context, parking requirements can be more flexible given the availability of on-street parking, shared parking and municipal parking. It is often beneficial to look at parking holistically in a downtown setting rather than on a parcel-by-parcel basis as visitors should be able to park their cars and travel on foot rather than needing to drive to each destination.

Richmond's parking provisions (Section 6.1. of the Zoning Regulations) include dimensional standards for parking spaces and parking lot aisles, and specifies the number of spaces required per use. The section includes standards for parking lot design features like surfaces, setbacks, landscaping, screening and lighting, including authority for the Development Review Board to waive requirements. The DRB may allow shared parking, off-site parking, or reductions in required spaces but only upon the applicant providing evidence in support of such a request.

Shared, Off-Site and Public Parking



A number of Vermont communities have incorporated shared parking ratios into their regulations to reduce the total amount of parking that a mixture of uses, whether on the same parcel or not, need to provide. For example, one use may demand weekday parking while another may require the most parking at night or on weekends. The two could share a certain percentage of their spaces and reduce the total amount of parking needed. Some Vermont towns specifically allow downtown businesses to count public parking spaces within a few hundred feet of their establishment towards their parking requirement.

A town can work with downtown property owners to equitably fund the creation of convenient municipal parking that is shared by all. Instead of each new building providing its own parking, municipalities can collect an impact fee from each new development based on their parking demand and use the funds to construct public parking.



St. George Draft Land Use Regulations (2009)

(7) On-Street and Public Parking. Where a parcel fronts upon a public or private road on which on-street parking is allowed, the on-site parking requirements for that parcel may be reduced from the requirements set forth in Table 3-B by:

- (a) 1 space for every 20 linear feet of frontage where parking is permitted (excluding frontage used for driveway accesses, pedestrian cross walks, and/or service areas) or each clearly marked space along such frontage; and
- (b) 1 space for every 5 marked public spaces or 100 linear feet of roadway where parking is permitted located within 600 feet of the building or use not including those spaces counted in Subparagraph (a) above.



St. George Draft Land Use Regulations (2009)

(B) Shared Parking. Within the Village Center, Village Neighborhood and Medium Density Residential districts, parking requirements may be adjusted in accordance with the following:

- (1) Parking requirements for mixed-use projects may be reduced according to Table 3-C.
- (2) Off-street parking requirements for multiple parcels are permitted to be calculated together provided the allocated parking spaces for each building or use are within 600 feet of the building or use.
- (3) Shared parking for 2 or more adjoining lots may be constructed across any common side or rear lot lines. The DRB may require an access easement if access to the parking area will be solely through a single parcel.

Table 3-C. Shared Parking Factors for Mixed-Use Projects

	Lodging / Dining	Office	Retail
Residential	1.2	1.4	1.2
Lodging / Dining		1.7	1.3
Office			1.2

To calculate required off-street parking for mixed-use projects, add up the number of parking spaces required for each individual use and divide by the appropriate factor.

Working to relocate parking for downtown tenants and employees away from the “prime” on-street spaces in front of downtown businesses can also help reduce perceived parking shortages. Allowing overnight on-street parking throughout the year can help provide parking for tenants in downtown buildings, encouraging residential occupancy of the upper floors of commercial buildings. Bennington has waived parking requirements in its downtown for residential units in the upper floors of historic buildings.

Limiting the Number of Parking Spaces



Many land uses, particularly, retail stores, want to provide enough parking for their busiest hour on the busiest day of the year and only a percentage of their parking will be needed on a regular basis. Although not common in Vermont, municipalities in other parts of the country have started specifying a maximum number of parking spaces that any given use can construct. Several Vermont towns use a system where they may only approve a portion of a given development’s proposed parking in order to see what the actual demand will be. If more parking is needed, the remainder is permitted for construction.

Reducing Parking Area Footprint



Parking lot dimensional requirements - the size of spaces and access aisles - are often larger than necessary, increasing the overall parking footprint. Richmond currently requires each space to be a minimum of 9 feet by 18 feet, which is fairly compact. However, the town’s aisle width requirements could be reduced as shown in the table below. Municipalities can also allow a certain percentage of parking spaces, especially in larger parking lots, to be designed for compact cars – reducing

	One-Way		Two-Way	
	Current	Sample	Current	Sample
Perpendicular	20 ft	18 ft	25 ft	20 ft
60-Degree	18 ft	15 ft	25 ft	20 ft
45-Degree	16 ft	12 ft	25 ft	20 ft
30-Degree	14 ft	10 ft	25 ft	20 ft
Parallel	12 ft	10 ft	20 ft	20 ft

Source: SmartCode

the square footage required for each space. Spaces for compact cars can be as small as 8 feet by 14 feet. Tandem parking (where one car parks directly behind another, blocking it in) for employees or tenants can be allowed to reduce the parking footprint or get additional spaces into an existing parking area.

Parking and Village Character

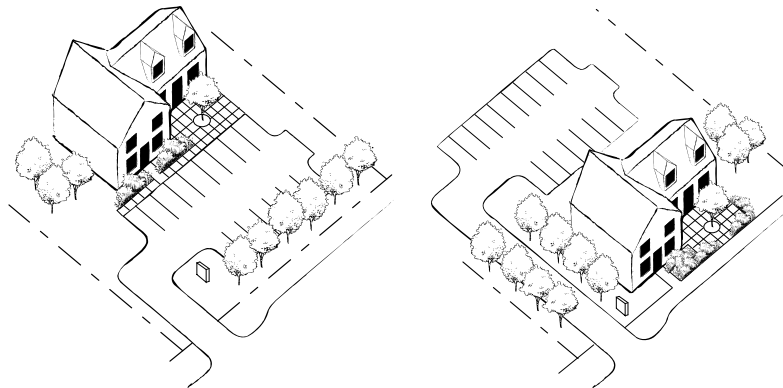


Parking not only takes up a lot of space, but it can also dominate downtown streetscapes, discouraging people from walking between destinations. A number of Vermont municipalities now prohibit or significantly limit the amount of parking between the public street and the building frontline. Parking is encouraged or required to locate behind or alongside buildings, so that it is not as visible from the street.



Waitsfield Land Use Regulations (2009)

(3) Non-residential parking areas are to be located to the side or rear of buildings, unless otherwise permitted by the Development Review Board under conditional use review.



The visual impact of parking lots can be eliminated by locating parking behind buildings or be reduced with landscaping and screening. Parking islands should be a minimum of 10 feet in width and be regularly maintained if plants are to thrive. The most attractive screening is a mix of trees, shrubs, perennials and groundcovers in naturalistic groupings. Raising a parking lot above or sinking it below street grade can also reduce the visual impact.



Low-Impact Development



Parking also creates large areas of impervious surface with its associated stormwater problems. Communities around Vermont are beginning to incorporate low-impact development techniques into their regulations to address stormwater, water quality and groundwater recharge issues. Low-impact development provisions offer options for “overflow” or “temporary” parking, such as grass pavers or other pervious pavements (photo upper left), that can accommodate that peak demand without paving the entire area with an impervious surface. Parking lot islands can provide opportunities for collecting stormwater and allowing it to infiltrate into the ground (photo lower left).



Structured or Underground Parking



Towns can also offer incentives to encourage structured or underground parking, thus reducing the footprint of surface parking.

- South Burlington and Williston both increase the permitted lot coverage for buildings when structured or underground parking is provided on-site.
- Williston has offered higher residential densities in some districts when parking was within or under a structure.
- Bennington’s regulations allow for reduction in the number of parking spaces required in exchange for structured parking.
- Colchester’s regulations allow the Development Review Board to require structured parking.



Bennington Land Use Regulations (2006)

(9) The Development Review Board may modify or waive space requirements to allow for the development of parking structures which are designed to avoid more land-intensive surface level parking, which serve one or more uses, and which are compatible with other structures and uses within the immediate vicinity of the proposed parking structure.



11. Expand the land uses allowed in village areas and encourage mixed-use development.

Richmond could allow a wide range of businesses to locate in village areas in order to keep Richmond Village economically viable and provide residents with basic goods and services. Richmond could also expand the types of residential development allowed in village areas that would include alternatives to detached single-family homes.



One of the hallmarks of traditional villages is the mix of uses in a compact area. Richmond Village is no exception with residential, commercial and civic uses coexisting in close proximity.

Several Vermont towns include incentives, such as density bonuses for PUDs, for mixed-use projects within village areas. As discussed above, requiring two-story structures in downtown areas also promotes mixed-use development.

- Colchester offers a density bonus of 50% to 100% for mixed-use PUDs in designated districts.
- Essex offers a density bonus of up to two dwelling units per acre for mixed-use buildings on their main street.
- Brunswick, Maine allows up to a five-fold increase in footprint for mixed-use buildings where at least 15% of the space is residential and not more than 70% is retail.



St. George Draft Land Use Regulations (2009)

The DRB may waive the maximum footprint requirement for mixed-use buildings that include both residential and non-residential uses. Consideration shall be given to whether the proposed structure and uses will be compatible with the character of a traditional village as described in the St. George Town Plan and the purposes of the zoning district(s) in which the project is located.

Several Vermont towns also have provisions requiring mixed-use development, this is more common in areas where there is pressure for residential structures to be converted to commercial uses or where there is a recognized need for affordable or workforce housing. Encouraging mixed-use development allows people to live and work in the same area, reducing the need to commute and increasing the sense of community.



Waitsfield Land Use Regulations (2009)

Restrictions on Retail and Offices. Retail and office uses are only permitted as conditional uses in a structure located entirely within 200 feet of the Vermont Route 100 right-of-way, and the structure must be a mixed-use building within which not less than 50% of the usable floor space is occupied for residential purposes (e.g. contains one or more dwelling units).

Many types of commercial and even industrial land uses can coexist with nearby residential and civic uses if they are scaled appropriately to their surroundings. Richmond could consider using maximum building footprint standards to ensure that new buildings are not out of scale, while expanding the list of permitted or conditional uses.

This takes the system used by the town currently for some uses, such as offices, restaurants and retail stores, with different standards for these uses based on their size, and applies that principle to all the allowed uses. Richmond has specified that a new non-residential use in the RC district cannot exceed 2,500 square feet of floor space per floor for up to a maximum of two floors. However, except for that restriction, the town relies solely on lot coverage to limit the scale of new buildings as discussed above.

Village areas generally provide a range of housing types including upper floor apartments and multi-unit structures. While Richmond allows for multi-unit residential buildings, the current regulations do place some limitations on them such as requiring the same minimum lot size per dwelling unit for multi-unit structures and limiting the maximum number of units per structure to four.

Some Vermont towns also expand the state required accessory apartment provisions to allow larger rental units in village areas or remove the restriction that the apartment be accessory to an owner-occupied single-family dwelling.

- Montpelier allows accessory apartments that are up to 40% of the size of the total habitable floor area of the single-family dwelling and exempt units that will be entirely within existing accessory structures from the maximum size requirement altogether.
- Hinesburg established a maximum size for apartment of 660 square feet or 30% of the principal dwelling, whichever is greater.

Many Vermont towns provide bonuses for affordable or senior housing units in their PUD provisions, which are even more appropriate within village areas.

- Charlotte provides a significant density bonus for affordable or elderly housing. The 1 unit per 5 acre residential density in their village districts may be increased to 4 units per acre for up to 10 affordable or 20 elderly housing units.
- Shelburne offers a 100% density bonus for elderly housing units in several of their zoning districts.



Multi-family housing can be designed to look like large single-family homes and existing large homes can be converted to multi-unit structures to increase housing opportunities in a village setting

Outbuildings like garages and carriage barns can provide opportunities for accessory apartments. These units not only increase the supply of rental housing, but can also provide an income stream for homeowners.





12. Establish a minimum required density in village areas.



While not common practice in Vermont, towns can require new development to meet a certain minimum density. This idea is strongly encouraged in the state's New Neighborhood program, which has set a target density of four units per acre to qualify for associated benefits.

Minimum density standards are more common outside of New England and in larger urban communities. King County, Washington has a minimum density requirement in specific districts that requires projects to include a minimum percentage (85% to 65% depending on the district) of the maximum number of homes that would be allowed under zoning. Their code includes provisions for reducing or waiving the minimum requirements based on natural constraints like slopes on the subject property.



Given the relatively small amount of land served by the town's municipal wastewater system, it may be worth considering whether low-density residential development would be an appropriate use of that resource. A minimum residential density could be targeted to developable land within the town's sewer service area or contiguous to the village through an overlay or floating zoning district.

Unlike overlay districts, floating zoning districts are described in the regulations but are not included on the zoning map. The zone "floats" over the town until it is affixed to a particular parcel. The floating zone regulations should clearly define under what circumstances the provisions of the district may be applied.



Vermont Neighborhoods Program

The Vermont Neighborhoods program provides financial benefits to stimulate new housing development in and around designated downtowns, village centers, new town centers and growth centers. To qualify for designation neighborhoods must:

- Be located either within or contiguous to the boundaries of a designated downtown, village center, or new town center.
- Complement the existing downtown district, village center, or new town center by integrating new housing units with existing residential neighborhoods, commercial and civic services and facilities, and transportation networks.
- Incorporate smart growth principles and design standards that promote compact, pedestrian-oriented development patterns and networks to connect with adjacent development areas.
- Be served by a wastewater system approved by Agency of Natural Resources.
- Have residential densities of at least four units of single-family dwellings per acre, and higher densities for duplexes and multi-family housing.

Benefits of designation include:

- Exemption from Act 250 for qualified mixed-income projects.
- 50% reduction in Act 250 application fees for projects not qualifying for the exemption.
- \$50 cap on the Agency of Natural Resources fees for wastewater review for projects that have received sewer allocation from an approved municipal system.
- Exemption from the land gains tax.
- Limitation on appeals of local approvals to the Environmental Court on "character of the area" criteria.

Richmond would be eligible to apply to receive these benefits for land within or contiguous to its designated village center.



Sample Traditional Neighborhood District

A. Purpose. This district is intended to allow the optional development and redevelopment of land consistent with the design principles of traditional New England village residential neighborhoods. A Traditional Neighborhood:

- (1) Is compact;
- (2) Is designed for the human scale;
- (3) Provides a mix of uses, including residential, commercial, civic, and open space uses in close proximity to one another within the neighborhood;
- (4) Provides a mix of housing styles, types, and sizes to accommodate households of all ages, sizes, and incomes;
- (5) Incorporates a system of relatively narrow, interconnected streets with sidewalks, bikeways, and transit that offer multiple routes for motorists, pedestrians, and bicyclists and provides for the connections of those streets to existing and future developments;
- (6) Retains existing buildings with historical features or architectural features that enhance the visual character of the community; and
- (7) Incorporates significant environmental features into the design.

B. Applicability. The provisions of this district may be applied to development sites that are a minimum size of 10 acres, and that are either within Richmond's sewer service area or that have been approved by the town for an extension of sewer service. Development sites may include one or more contiguous parcels in common or separate ownership. For the purposes of this provision, contiguous shall be interpreted to include land separated by a state highway, town road or private road.

C. Vermont Neighborhood Designation. Richmond will seek Vermont Neighborhood designation for qualifying projects within or contiguous to its designated village center.

D. Minimum Residential Density. 4 units per buildable acre. (Buildable acres shall not be interpreted to include floodplains, wetlands, slopes in excess of 30%, and utility and road rights-of-way.)

E. Maximum Residential Density. 6 units per buildable acre or up to 12 units per buildable acre with the application of bonuses (affordable housing, sustainability, etc.) or transfer of development rights from the designated rural sending area.



Examples of new development designed in accordance with the principles of traditional neighborhoods.

CREATIVE DEVELOPMENT



13. Promote use of PUDs, hamlets and conservation subdivisions.

Richmond could allow modifications to the dimensional requirements (lot sizes, setbacks, frontages) of rural zoning district(s) with the intent of avoiding the “cookie-cutter” pattern that can result from large-scale conventional subdivisions.



Many rural communities, while perhaps requiring larger lot sizes, have adopted essentially suburban zoning and subdivision standards. Not surprisingly, the development pattern created from these regulations results in places that are more suburban than rural in character with wide roads and consistent lot sizes, building types, setbacks and frontages. Over the past two decades, rural towns have explored options to the conventional subdivision that promote compact development and conservation of working lands or open space.

As a result, a number of alternatives to conventional subdivisions have been developed including cluster subdivisions, conservation subdivisions, hamlets, traditional neighborhood development (TND), planned residential development (PRD) and planned unit development (PUD). While there are minor differences between these techniques, the underlying principle is the same – group development together in order to maintain large areas of undeveloped land. In Vermont, the term planned unit development (PUD) has been used in the enabling statute for municipal land use planning and regulations, so it will be used in this report to refer to this group of techniques.



Richmond Zoning Regulations (2009)

5.12 Planned Unit Development (PUD) and Residential PUD

Purpose - In accordance with the Act (§4417), Planned Unit Developments (PUDs) are authorized within designated zoning districts in order to encourage flexibility of design and the development of land in such a manner as to promote the most appropriate use of land, to facilitate adequate and economic provision of roads and utilities and to preserve the natural and scenic qualities of the open lands of the Town of Richmond. The modifications of the dimensional requirements governing lot area, lot dimension, lot frontage and lot coverage and the dimensional limitations for structures governing front, side and rear yard setback requirements of these Zoning Regulations may be permitted, subject to the conditions set forth in this section.

5.12.2 General Conditions

The PUD provision may be used for any sized parcel, but is required for a development of over nine lots, or one in which multiple uses, multiple ownership of buildings or multiple buildings on a single lot are proposed. For the purpose of determining the number of lots, all lots shall be counted if they have been approved for subdivision by the DRB or Administrative Officer within a continuous period of sixty months preceding the date of filing the subdivision application.

Rural PUDs



PUDs take the idea of density-based zoning, allow small lots while retaining a low overall density, one step further by requiring (or very strongly encouraging) compact development with associated open space. Richmond currently has provisions for PUDs in its land use regulations, which include requiring the subdivision of more than nine lots to be a PUD rather than a conventional subdivision.

Richmond’s regulations, however, do not specifically require small lots or a certain percentage of open space within PUDs in the rural areas of town. Many Vermont towns require that rural PUDs keep a certain percentage of the original parcel

as undeveloped open space or working land while clustering development on the remaining portion of the property.

- Shelburne requires that 33% of the total acreage of a PUD on parcels 50 acres or less in size be set aside as open space. For larger parcels, the set aside is a minimum of 50%.
- Waitsfield requires a 60% set aside for PUDs in its rural districts.
- Warren offers developers a density bonus of up to 25% for setting aside a minimum of 60% of the original parcel as open space within a PUD.
- Fayston and Bennington offer a density bonus for a set aside of 75% or more.
- St. George has drafted PUD standards that would require a minimum set aside of 50% in its rural district and provide a significant density bonus as the percentage of the set aside is increased above 50%.

PUDs can include incentives linked to other planning goals such as:

- Development of affordable and/or senior housing.
- Creating opportunities for public recreation.
- Incorporating energy efficiency, renewable energy generation and/or green building techniques into the design.
- Utilizing low impact development techniques to manage stormwater and/or wastewater.

Williston has a growth management program that currently limits the number of permits for new dwelling units to 80 townwide. The program uses a point-based system to allocate the permits on an annual basis that includes the criteria below for rural subdivisions. Once each year, subdivisions are scored and permits are allocated based on their point totals. While Williston’s program does not directly reduce density, the approach could be translated into a PUD incentive system.

- **Energy Conservation.** Up to 10 points based on percentage of units will be Five-Star or LEED certified.
- **Affordable Housing.** Up to 10 points based on percentage of units that will be affordable.
- **Paths and Trails.** Up to 10 points for providing and internal trails and connecting to the townwide path system.
- **Context.** Up to 10 points for a design that is compatible with its surroundings.
- **Open Space Conservation.** Up to 10 points for permanent conservation of open space.
- **Visual Impact.** Up to 10 points based on the visibility of proposed development from public roads.



St. George Draft Land Use Regulations (2009)

Density Bonus for Land Conservation in the Rural Development District.

The base district density in the Rural Development districts is 1 unit per 10 acres. The DRB may approve an increase in density for PUDs in this district to a maximum of 1 unit per 5 acres in exchange for the applicant conserving land in addition to the minimum requirement of 50 percent as shown in Table 6-A:

% of Total Acreage	Density Bonus	% of Total Acreage	Density Bonus
50% conserved	1 unit per 10 acres	65% conserved	1 unit per 7 acres
55% conserved	1 unit per 9 acres	70% conserved	1 unit per 6 acres
60% conserved	1 unit per 8 acres	75% conserved	1 unit per 5 acres



Given the Richmond's one-acre zoning, currently there is little reason for developers to use the PUD provisions. Even when PUDs are required, there may be little potential for open space preservation given the allowed density.

PUDs could provide Richmond with an opportunity to balance a reduction in overall density in rural areas by offering bonuses that create incentives for development that protects rural character and resources. State law no longer limits the bonuses towns can offer within their PUD provisions. If density in the rural areas of town were lowered, a system of bonuses could be offered that could increase density for projects that meet one or more town planning goals.

PUDs are most effective when entire parcels or large acreages are going to be developed. The density-based techniques and PUD provisions can be effectively combined to provide options for landowners, whether subdivision will be occurring incrementally or as a major development.



Sample Incentive System for Richmond

Density Bonuses for Rural PUDs. To promote development that conforms to the goals and policies of the Richmond Town Plan, density bonuses for PUDs in rural districts shall be calculated as specified in Table A.

Table A
Sample Density Bonus Calculation

1. Base density of parcel to be developed/subdivided = 0.1 dwelling unit per acre

2. Point System

A. Productive Land and/or Important Habitat Conservation

75% or more acreage permanently conserved	= 15 to 25 points	10
50%-74% acreage permanently conserved	= 5 to 14 points	
49% or less acreage permanently conserved	= 0 points	

B. Affordable Housing

40%-49% affordable units	= 20 to 25 points	5
20%-39% affordable units	= 5 to 19 points	
19% or less affordable units	= 0 points	

C. Sustainability and Energy Conservation

75% or more energy/green certified units	= 20 to 25 points	15
50%-74% energy/green certified units	= 5 to 19 points	
49% or less energy/green certified units	= 0 points	

D. Visual Impact

Will not be visible from public roads	= 25 points	25
Will be minimally visible from public roads	= 5 to 20 points	
Will be visible from public roads	= 0 points	

Total points: 55

3. Density Bonus Earned:

90-100 Points	= 100% bonus	50%
75-89 Points	= 75% bonus	
50-74 Points	= 50% bonus	
30-49 Points	= 25% bonus	
0-29 Points	= no density bonus	

4. Final density of parcel to be developed/subdivided = 0.15 du/acre

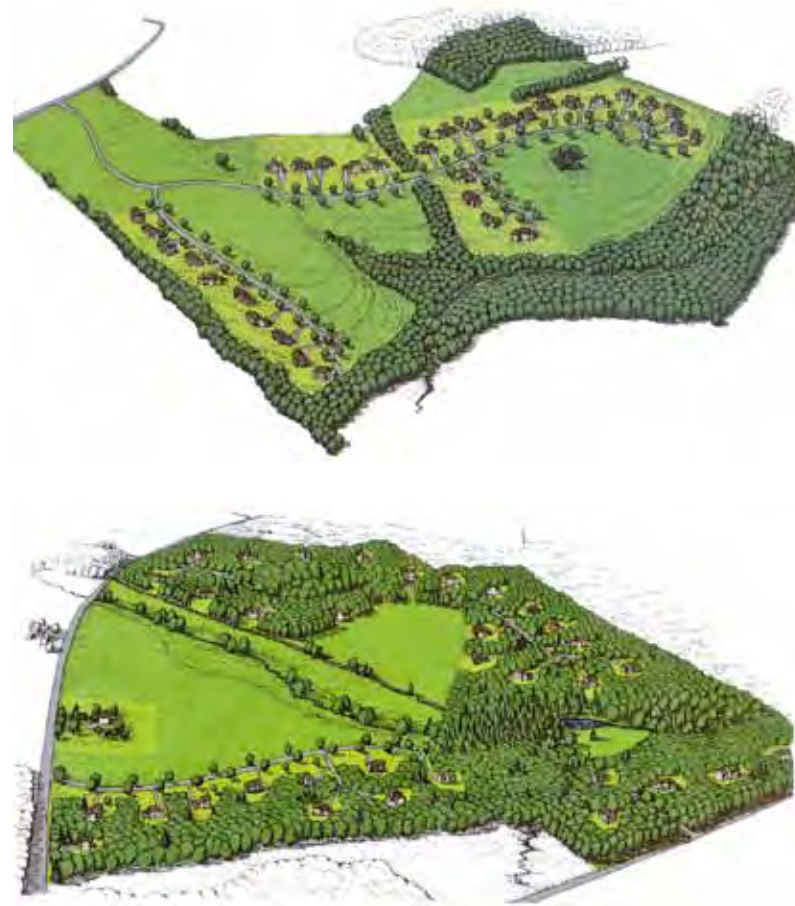
Conservation Subdivision Design



There are several variations on “clustering,” including the conservation subdivision, which was developed and popularized by Randall Arendt. The defining feature of the conservation subdivision technique is the process it establishes for designing and reviewing subdivisions.

The conservation subdivision design process requires detailed site surveys and analyses identifying the special features of each property, and introduces a simple methodology showing how to lay out new development so that the majority of those special features will be permanently protected in designated conservation areas or preserves. It reverses the typical subdivision process where homes are sited, roads are laid out, lots are drawn, and then remaining areas may be set aside as open space. The process encourages the applicant, reviewing board and neighbors to become familiar with the land through site visits and discourages spending time and money on detailed engineering until the final step of the subdivision design and review process.

The conservation subdivision design process, as established in Randall Arendt’s model ordinances, is commonly used or even required for rural development in a number of New England states (Rhode Island, Connecticut and Massachusetts). While few use the entire process, a number of Vermont towns have adapted the principles to create a hybrid between conventional and conservation subdivision regulations.



Conservation subdivisions identify the most valuable natural resources on an individual parcel and design the development to preserve those resources to the greatest extent feasible. For the parcel of land shown in the upper illustration, it was determined that the steep slopes and wooded habitat were more critical to preserve than the open land. In the lower illustration, the farmland was determined to be the most valuable resource and the development occurred in the wooded portion of the parcel. [Illustrations from Conservation Design for Subdivisions: A Practical Guide to Creating Open Space Networks by Randall Arendt. Island Press, 1996.]



Sample Conservation Subdivision Language for Richmond

(A) Subdivision Design and Review Process. Subdivisions shall be designed and reviewed as follows:

(1) Step One – Context and Site Analysis.

(a) Context Map. The applicant shall prepare and submit a Context Map showing all elements required as per the Required Submittals Table and including all land within ½ mile of the parcel to be subdivided. The purpose of the Context Map is to acquaint the applicant/property owner, DRB and other interested persons with the resources and development patterns near the development site at an early stage in the process.

(b) Existing Resources Plan. The applicant shall prepare and submit an Existing Resources Plan showing the features and resources on the parcel to be subdivided as per the Required Submittals Table. The purpose of the Existing Resources Plan is to provide the applicant/property owner, DRB and other interested persons with virtually everything they need to know about the property in terms of its noteworthy natural and cultural features.

(c) Qualified Professionals and Data Sources. The applicant is encouraged to work with one or more qualified professionals such as a landscape architect, planner with natural resources expertise, forester, conservation biologist, etc. in developing the materials needed for Step One through Step Three of the subdivision design and review process. The use of existing GIS information or handheld GPS units to document the location of site features is encouraged; no surveying or engineering will be required until Step Four of the process.

(2) Step Two – Site Walk and Informational Meeting.

(a) Site Walk. Because it is impossible to completely understand a site only by examining a two-dimensional paper document inside a meeting room, the DRB should walk the property with the Context Map and Existing Resources Plan to gather firsthand knowledge of the site.

(b) Informational Hearing. The DRB shall hold an informational hearing with the applicant to discuss the potential subdivision. This hearing should provide an opportunity for review of the Context Map, Existing Resources Plan and Site Walk, as well as the applicable provisions of these regulations. It should also allow for communication between all parties before significant time and money has been spent on the subdivision plan with the goal of reducing the potential of future conflicts and the need for multiple revisions to the proposed plan.

(3) Step Three – Preliminary Design. In Step Three, the overall concept for the subdivision should be outlined, showing areas of proposed development and areas of proposed conservation or open/public space.

(a) Design Process. Applicants are strongly encouraged to use the following process when designing their subdivisions: (i) Determine location of open space; (ii) Select house locations; (iii) Align streets and trails to connect the homes; and (iv) Draw lot lines and/or development envelopes.

(b) Conceptual Preliminary Plan. The Conceptual Preliminary Plan should be drawn to scale so that it can be laid on top of the Existing Resources Plan to illustrate the relationship between the proposed layout and the natural and cultural resources existing on the site.

(c) Preliminary Design Hearing. The DRB shall hold a public hearing on the preliminary design as presented in the Conceptual Preliminary Plan.

(4) Step Four – Final Design.

(a) Engineered Master Plan. Elements to be included on the Engineered Final Plan are listed in the Required Submittals Table.

(b) Final Design Hearing. The DRB shall hold a public hearing on the final design as presented in the Engineered Final Plan.

Hamlets



One characteristic of the rural landscape is its lack of uniformity. Traditionally in rural areas, there were great expanses of largely undeveloped land, but interspersed there were small areas of high-density development (commonly focused around crossroads, railroad stations, water power sites, or similar features). While a century ago, such settlements often included businesses and civic uses, many have now become primarily residential. In looking for new ways to accommodate the increased demand for rural living while protecting rural character and natural resources, communities around the country have turned back to the model of the traditional rural hamlet as an alternative to the conventional suburban subdivision.

These communities, including a number of Vermont towns, have adopted specific standards for PUDs that are intended to replicate the density, scale and pattern of development characteristic of traditional rural hamlets. Commonly, hamlet provisions include more specific standards related to the number of homes being grouped together, the number of acres that will be developed, how the buildings will relate to each other and the street, the dimensional standards of the lots, the provision of formal open space like a public green, etc. than are typically proscribed for rural PUDs.

There may be locations in Richmond that are well suited for this type of development based on their location and physical characteristics such as terrain and soil conditions. Where conditions are suitable for this type of development, it may be appropriate to increase densities even beyond the current one dwelling per acre. Rural hamlets, if large enough, may also be appropriate locations for small businesses and civic uses.



Warren Land Use Regulations (2006)

ARTICLE 8. PLANNED UNIT & PLANNED RESIDENTIAL DEVELOPMENT

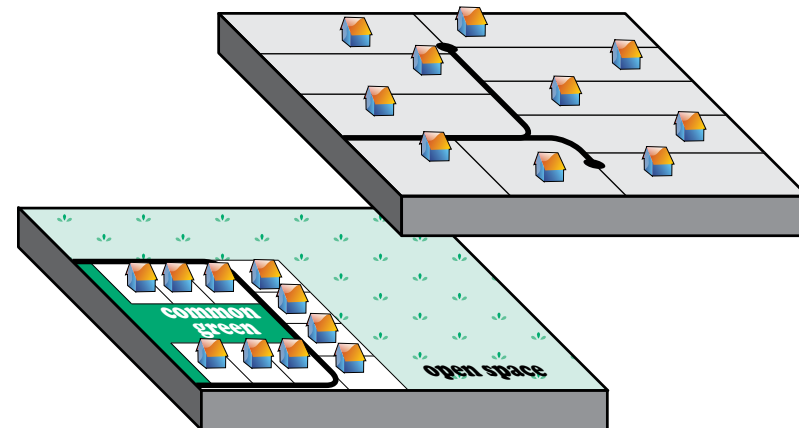
(1) Crossroad Hamlet. Proposed PRDs may be designed in a manner that replicates a traditional crossroads hamlet, characterized by a concentration of residential buildings and one or two prominent cultural, community or civic structures, located at a road intersection, bounded by farmland or forest. To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

(a) 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);

(b) 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;

(c) a well-defined edge between the hamlet and surrounding open space; and

(d) the maximum number of dwellings allowed in a Crossroad Hamlet shall be as established in Subsection 8.3(C).



A hamlet PUD would cluster development with a more formal organization of the lots and relationship between the buildings than a typical rural subdivision.



14. Encourage and allow the purchase or transfer of development rights.

Richmond could allow transfer of development rights out of its rural areas to its village areas or other areas designated for higher-density development.



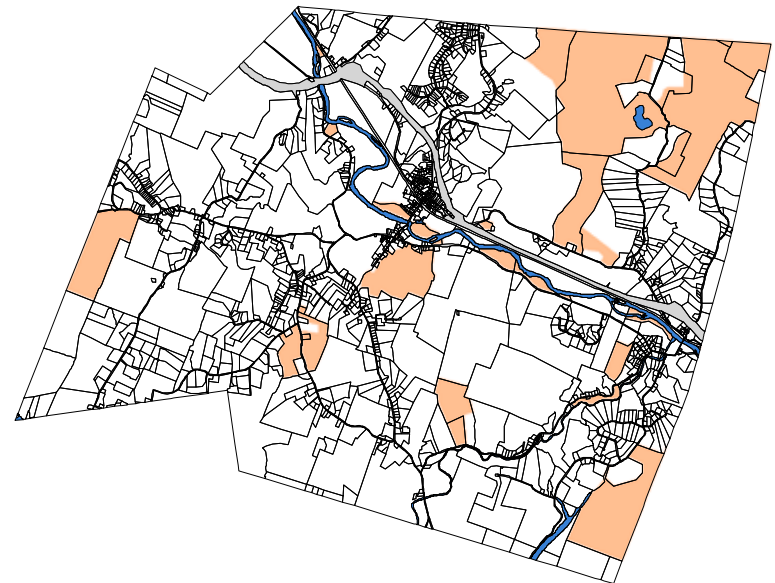
Another set of techniques used to protect rural character and natural resources is based on the idea of separating the right to further develop land from the right to own and use the land. While not usually thought of this way, property is associated with a number of rights, some of which are held by the owner and some of which may not be – the right to the resources underground, the right to water, the right to the airspace above the property, the right to travel across the property, etc. The right to develop (build upon or subdivide) the property is just one of these rights and like the others can be sold or transferred independently. An owner may sell, donate or potentially transfer to another location the development rights to all or a portion of their property.

The purchase of development rights (PDR) is a widely used conservation technique in Vermont. Currently, around 3,450 acres of land (16% of the town's land area) has been conserved in Richmond. This includes easements held by the Vermont Land Trust, land acquired by the Richmond Land Trust, town- and state-owned land, and the Prelco land among others.

Local land trusts may take donations of land or development rights, which can provide tax benefits for the donor. Some Vermont towns have their own conservation fund, frequently created by adding an extra few cents to the property tax rate annually, and use that money to purchase land or development rights. Some towns and land trusts will hold easements or take ownership of open space lands created through PUDs;

this is more common where there is a recreation resource or other special feature on the property. Some land trusts will take ownership of land or hold easements only if funds are provided for the ongoing maintenance or management of property.

A few Vermont towns are beginning to implement transfer of development rights (TDR). As with PDR, the development rights are being removed from one parcel of land, but instead of being held by a conservation organization, they are transferred to another location that can then be developed at a higher density than otherwise allowed by the zoning regulations. This technique has been more commonly used in other parts of the country and has been typically implemented on a county- or region-wide scale. Where TDR is implemented more widely, there is a “density bank” that buys and sells de-



Richmond's Public and Conserved Lands

velopment rights, so the program is not dependent on matching up willing buyers and sellers on a project-by-project basis.



TDR has worked best in those areas that are facing significant development pressure, where there has been a level of demand that created a market for additional development rights. It does not appear that Richmond is currently facing a level of growth that would make TDR widely attractive to developers. South Burlington is the only Vermont municipality with an active TDR program aimed at protecting open space in its Southeast Quadrant, although Colchester is also preparing to use TDR to conserve some of its agricultural land.

Further, to be successful a TDR program needs not only rural lands to be conserved (sending areas) but also areas designated for, and able to accommodate, increased densities of development (receiving areas). Most rural Vermont towns have plenty of the former, but little of the later. Richmond, however, does have a municipal wastewater plant with excess capacity, which makes TDR potentially feasible from an infrastructure perspective if lands could be designated for higher-density development where services could be provided.

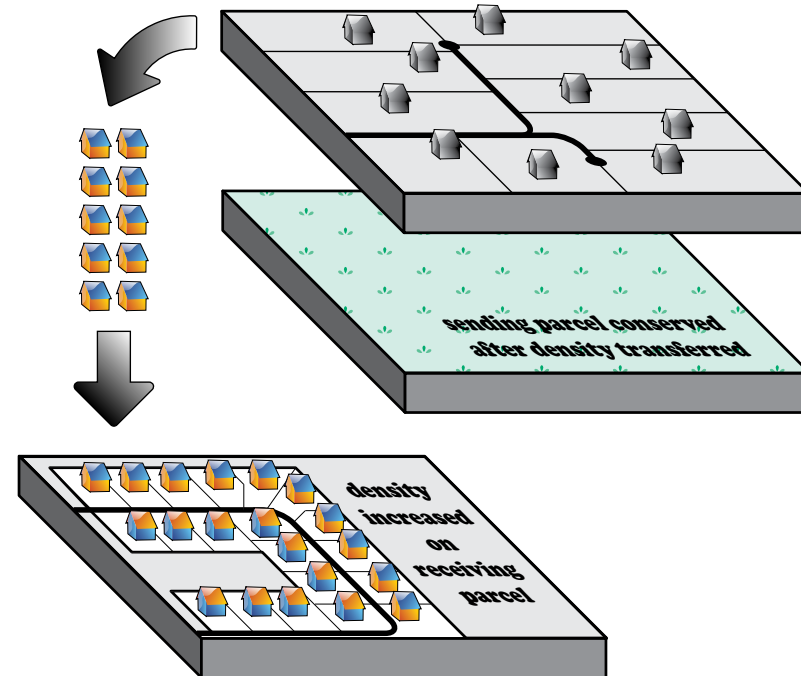
A number of Vermont towns have taken the TDR concept and adapted it to a project-by-project system by simply allowing PUDs to include multiple parcels of non-contiguous land. St. George is currently drafting regulations that would offer a density bonus if development rights are transferred out of their rural districts to the village districts. Similarly, Colchester's TDR program will offer incentives to transfer development rights to their growth center, while still allowing transfers to other residential districts as well. This small-scale TDR technique would likely be more appropriate in Richmond and offers owners even more options for conserving or developing their land.



St. George Draft Land Use Regulations (2009)

(C) Multiple Districts, Lots and/or Owners.

- (1) Where a district boundary line divides a parcel, the development of a single PUD shall be allowed with a total density based on the combined allowable density of each district. Development may be located on any portion of the parcel, regardless of zoning district, in accordance with the standards set forth in these regulations.
- (2) The DRB may approve PUDs involving 2 or more contiguous or non-contiguous parcels, whether in common or separate ownership, with the total density based on the combined allowable density of all parcels. Development may be located on any portion of the parcels in accordance with the standards set forth in these regulations.



NATURAL RESOURCES



15. Develop more specific standards for natural resource protection.

Richmond could incorporate more specific standards into its zoning and subdivision regulations to protect natural resources.



Recent Vermont court decisions have indicated that communities need more specific language related to protection of natural resources so their regulations can withstand legal challenges. Statements like “development shall be designed to protect important natural resources and protect environmental quality” may no longer be adequate to implement town planning goals.

Productive Land and Soils



Richmond could undertake a more detailed analysis of its important agricultural and forest soils. Aerial photos and satellite imagery could be used to assess the size, location and configuration of farmland and unfragmented forest blocks. The data could be used to determine how many acres of these resources remain undeveloped, how much has been conserved, how much is located in areas of planned higher density development, etc.

With this information, specific preservation goals could be established such as “Richmond will conserve 50% of its remaining undeveloped important agricultural soils.” That goal could then be implemented through a specific standard in the town’s land use regulations.



Sample Farmland Preservation Standard for Richmond

Preservation of Agricultural Land and Soils. The Richmond Town Plan calls for the conservation of 50% of the town’s remaining undeveloped important agricultural soils. To that end, any subdivision on land that includes 5 or more acres of important agricultural soils or 10 acres or more of land used for farming during the past 5 years shall conserve in perpetuity a minimum of 50% of the important agricultural soils and/or farmland on the parcel.

Flood/Fluvial Erosion Hazard and Riparian Buffers



Richmond recently adopted an updated Flood Hazard overlay district that continues to largely prohibit new development within the flood hazard areas mapped by the Federal Emergency Management Agency (FEMA).

While inundation-related flood loss is a significant component of flood disasters, the predominant cause of flood-related damage in Vermont is due to fluvial erosion. Fluvial erosion is caused by rivers and streams, and can range from gradual bank erosion to catastrophic changes in channel location and dimension caused by run-off generated during intense storms. The frequency and intensity of hazardous storms appears to be rising as an effect of climate change suggesting that more attention should be paid to fluvial erosion as a potential hazard.

The Vermont River Management Program is current coordinating a statewide effort to map Fluvial Erosion Hazard areas along rivers and streams. Richmond could expand its flood provisions to include fluvial erosion hazards. The state has also prepared model regulations for fluvial erosion hazard areas that discourage development and encourage retention or establishment of woody vegetation in these riparian areas.

In addition to reducing flood hazards and stabilizing stream banks, naturally vegetated riparian buffers provide a number of important environmental services including:

- Providing both terrestrial and aquatic wildlife habitat.
- Creating wildlife travel corridors.
- Filtering run-off and absorbing nutrients.
- Shading streams, keeping water temperatures from rising.

Richmond's Shoreline Protection Overlay District encourages, but may not necessarily require, development to be set back 50 feet from ponds, rivers, streams and brooks. This provision could be strengthened by requiring set backs and limiting clearing of vegetation within riparian buffers. The Vermont League of Cities and Towns (VLCT) had prepared a model ordinance to protect riparian buffers that many towns have adapted.

Buffer widths may vary from 50 feet to several hundred feet, depending on their purpose. Generally, a naturally vegetated 50-foot-wide riparian buffer on each side of a stream will control soil erosion, while a 100-foot-wide buffer will also protect many of the functions associated with healthy riparian habitat. However, to provide travel corridors and habitat for some species, wider buffers may be needed.



Some towns apply buffers to all surface waters including intermittent streams and small tributaries, while others limit them to major water features. Many towns apply their buffer requirements only to the streams shown on the USGS quad maps. Current homeowners may object to the imposition of riparian buffers that limit clearing, so some towns apply the regulations only to newly created lots or new home construction. Others allow a certain percentage or number of linear feet of stream frontage to remain lawn.



VLCT Model Riparian Buffer Ordinance

SECTION 5. GENERAL STANDARDS

(A) Except as provided in Subsection (B) below, all lands within a riparian buffer shall be left in an undisturbed, vegetated condition.

(B) Removal of dead trees or trees of immediate threat to human safety as well as reasonable pruning of existing trees is permitted.

(C) The creation of new lawn areas within riparian buffers is not permitted. Property owners already encroaching on the riparian buffer are encouraged to return mowed areas to their naturally vegetated state. Supplemental planting with appropriate native vegetation to restore and enhance the effective filtering and bank stabilization functions of a riparian buffer is encouraged.

(D) Any areas within a riparian buffer that are not vegetated or that are disturbed during construction shall be seeded with a naturalized mix of grasses rather than standard lawn grass.

Wetlands, Groundwater Recharge and Source Protection Areas



Wetlands are a focus of much natural resource protection efforts in Vermont because of the important environmental services they provide and because such a large percentage have already been lost to development or agriculture. Wetlands provide wildlife habitat, flood and erosion protection, nutrient and pollutant filtration, and groundwater recharge.

Richmond's regulations currently prohibit construction within 100 feet of a Class I and 50 feet of a Class II wetland, which is consistent with state environmental regulations. Class I and II wetlands are regulated by both the Vermont Department of Environmental Conservation and the Army Corps of Engineers. Class III wetlands are not included on the Vermont Significant Wetland Inventory map and are not regulated by the state, although they still may be regulated by the Army Corps.



There has been no systematic inventory of Class III wetlands in Richmond. Such an inventory would be useful in determining whether the town's wetlands are adequately protected by existing regulations.

Similarly, little is known about groundwater recharge areas in Richmond. There has been relatively little mapping of surficial geology in Vermont so it is difficult to precisely identify areas where surface water can infiltrate into the ground, reaching the aquifers that supply much of the state's, and nearly all of Richmond's, drinking water. Again more detailed inventory and mapping would be useful to craft regulations to protect groundwater recharge areas.

Richmond has a Water Supply Protection ordinance that prohibits certain land uses from the Source Protection Area around the wells that supply the municipal water system. This ordinance could be expanded to include all community water supplies in town and could be incorporated into the zoning regulations to simplify its administration.

Steep Slopes, Hillside and Ridgelines



Development on steep slopes has greater potential for environmental impact than development on more level terrain. Development on steep slopes disturbs far more than the building footprint because a large area will need to be regraded to create a level pad for construction. Septic systems are especially difficult to construct and maintain on steep slopes, both because of the grade and because the soils tend to be shallow and poorly drained. Roads and utility lines are also difficult and expensive to extend up steep slopes, and to maintain after construction. All of these can result in natural resource and environmental quality impacts.



Charlotte Land Use Regulations (2006)

Section 3.14 Steep Slopes

(A) Steep Slopes. Development impacting an area of 200 square feet or greater which has a slope with an existing grade equal to or in excess of 15% (prior to any site improvement, excavation or blasting), or which results in such slopes over such an area, if not being reviewed as a subdivision or Planned Residential or Unit Development under the provisions of Chapters 6, 7 and 8, shall be subject to conditional use review by the Board of Adjustment under Section 5.4 and the following provisions:

- (1) The site development plan submitted under Section 5.2 shall include contour intervals of five (5) feet or less, slope profiles showing existing gradients and proposed cut and fill sections, and a stormwater management and erosion control plan, prepared by a professional licensed by the state, that covers all phases of development (site preparation, construction, post construction).
- (2) Development shall be sited and constructed, and slopes stabilized in accordance with accepted engineering and best management practices for stormwater management and erosion control to:
 - (a) prevent runoff, erosion, slumps, and other down slope movements of material, and
 - (b) to minimize associated risks to surface and ground waters, public facilities and roads, and neighboring properties.
- (3) Development, including road and utility corridors, on slopes equal to or in excess of 15% shall be sited and designed to minimize visual impacts from public vantage points. The use of landscaping and natural screening materials is encouraged, and may be required to lessen the visual impact of such development.

(B) Very Steep Slopes. Development is specifically prohibited on slopes equal to or in excess of 25%, with the exception of stairways to the shoreline within the Shoreland District and the Shoreland Seasonal Home Management District, which are subject to conditional use review under Section 5.4



East Nantmeal, PA Steep Slope Ordinance

§§902. DESIGNATION AND INTERPRETATION OF DISTRICT BOUNDARIES

A. The Steep Slope Conservation District consists of two (2) areas which are delineated and defined as follows:

1. Prohibitive Slope - Prohibitive slopes are those of twenty five- (25) percent or greater slope (e.g., sloping twenty-five (25) feet or more vertical over a distance of one hundred (100) feet horizontal). Slopes shall be deemed Prohibitive when there are five (5) adjacent contour intervals of two (2) feet each such that, in aggregate, they delineate a slope of at least twenty-five (25) percent.

2. Precautionary Slope - Precautionary slopes are those fifteen (15) to twenty five (25) percent slope (e.g., sloping fifteen (15) to twenty five (25) feet vertical over a distance of one hundred (100) feet horizontal). Slopes shall be deemed Precautionary when there are four (4) adjacent contour intervals of two (2) feet each such that, in aggregate, they delineate a slope between fifteen (15) and twenty-five percent.

B. Steep slopes shall be determined by either aerial photogrammetric methods or by field survey. The contour interval shall be set forth at no more than two (2) feet per interval slopes less than twenty-five (25) percent, and may be set forth five (5) feet per interval on slopes over twenty-five (25) percent. On properties containing no slopes greater than ten (10) percent USGS 7.5 minute Quadrangles may be used as the source of such information, subject to the approval of the Zoning Officer at the recommendation of the Township Engineer.



Richmond does not currently limit development on steep slopes, although construction on slopes over 20% does require an erosion control plan. A number of Vermont towns prohibit development on steep slopes (typically defined as 25%-30%) and require conditional use approval for development on moderate slopes (typically defined as 15%-20%).

Small areas of steep slopes can be found on nearly every piece of property, so it is important to define how slope will be measured in the regulations. An average over any 50- or 100-foot section is a common way of measuring slope.



Bennington Land Use Regulations (2006)

8.4. Preservation of Rural Character

(B) **Prominent Hillside & Ridgelines.** Subdivision boundaries, lots and development envelopes shall be located and configured to avoid the placement of structures in locations with high visibility from surrounding areas, especially public roads and important community vantage points (e.g., public parks and recreation areas, historic sites). Methods for avoiding such adverse impacts include but may not be limited to the following:

(1) Development Envelopes shall be located and configured so that the height of any structure placed on the site after subdivision will not visually exceed the height of the adjacent tree canopy serving as the visual backdrop to the structure, and shall be located down-slope of ridgelines and prominent hills.

(2) On wooded sites, forest cover shall be maintained or established adjacent to proposed structures to interrupt the facade of buildings, provide a forested backdrop to structures, and/or soften the visual impact of new development as viewed from public roads and properties. The Board shall consider the location of proposed structures relative to existing vegetation, and may require additional planting and/or limit the amount of clearing adjacent to proposed development to provide screening and maintain a forested backdrop. A tree cutting, landscaping and/or forest management plan may be required to ensure that ridges and hill tops remain wooded, and trees remain standing immediately adjacent to buildings to visually interrupt facades and reduce reflective glare, as viewed from off site.

(3) On ridgelines and prominent hillsides that have been cleared prior to subdivision, the Board shall consider the location of development envelopes and associated development relative to potential visibility and the availability of less visible locations on the site. The location of development shall be restricted to minimize visibility as viewed from town roads and properties; and additional landscaping may be required to screen development and reduce visibility.

It is also necessary to consider the accuracy of available elevation data and the level of detail that will be required for topographic surveys. Vermont towns typically rely on USGS topographic data, which is usually not detailed enough for an accurate site-level assessment of slope. Some communities require applicants to submit topographic survey data to provide the detailed information needed to ensure compliance with steep slope regulations.

Some Vermont towns also prohibit or review as conditional uses any development on highly visible hillsides and/or ridgelines. Typically these restrictions are based on a viewshed analysis that identified those areas that are highly visible from public roads or other important vantage points. Within such areas there may be special provisions like height restrictions, clearing limits, consideration of building color and the reflectivity of building materials, etc.



Richmond Subdivision Regulations (2009)

Section 500 General Planning Standards

The DRB shall evaluate any application for subdivision approval in accordance with the following considerations. The DRB may require the subdivider to submit information addressing impacts related to these considerations.

(11) Whether the proposed development avoids established large animal habitat undue adverse impact and prevents undue adverse impact to, or provides adequate protection for such habitat and retains unrestricted animal access to the identified habitat

Article IX Definitions

Large Animal Habitat: An area which has been identified as a seasonal or permanent congregating place for large animals (such as bear, deer, moose, coyote or felines) for extended feeding, breeding or wintering purposes. Sources for identifying such habitat include but are not limited to Vermont Heritage survey of natural features (on file at the Regional Planning Commission), the Agency of Natural Resources, and/or local knowledge.

Impact of Forest Fragmentation on Wildlife Species

Undeveloped Forest	Blocks 500+ Acres	Blocks 100-499 Acres	Blocks 20 - 99 Acres	Blocks <20 Acres
Small Rodent	Small Rodent	Small Rodent	Small Rodent	Small Rodent
Squirrel	Squirrel	Squirrel	Squirrel	Squirrel
Cottontail	Cottontail	Cottontail	Cottontail	Cottontail
Hare	Hare	Hare	Hare	
Raccoon	Raccoon	Raccoon	Raccoon	Raccoon
Skunk	Skunk	Skunk	Skunk	Skunk
Porcupine	Porcupine	Porcupine	Porcupine	
Weasel	Weasel	Weasel	Weasel	
Woodchuck	Woodchuck	Woodchuck	Woodchuck	
Muskrat	Muskrat	Muskrat	Muskrat	Muskrat
Mink	Mink	Mink		
Beaver	Beaver	Beaver	Beaver	
Red Fox	Red Fox	Red Fox	Red Fox	Red Fox
Fisher				
Bobcat				
Coyote				
Deer	Deer	Deer		
Moose	Moose			
Black Bear				

Source: A Response to Sprawl: Designing Communities to Protect Wildlife Habitat and Accommodate Development and Conserving Wildlife in Maine's Developing Landscape; July 1997.

Natural Communities, Wildlife Habitat and Travel Corridors



Richmond's subdivision regulations require consideration of wildlife habitat. The regulations could include more specific standards to guide determination of what constitutes an undue adverse impact to wildlife habitat.



While the town has some information about its wildlife resources, it does not have the level of data necessary to delineate precise areas of critical habitat. Without a detailed inventory of natural communities, the most effective method of preserving habitat is to limit the fragmentation of large forest blocks. As the table above shows, the size of undisturbed forest areas greatly impacts the number of species that can thrive within that area.

Similar to the agricultural resources example, Richmond could delineate existing core forest and determine what percentage is already protected and what remains developable. The town could establish a quantitative goal such as “To minimize fragmentation of existing undeveloped forest blocks greater than 50 acres in size.” That goal could then be implemented through a specific standard in the town’s land use regulations.



Sample Forest Conservation Standard for Richmond

Protection of Forest Blocks. The Richmond Town Plan calls for minimizing fragmentation of existing undeveloped forest blocks greater than 50 acres in size. To that end, any subdivision on land that includes 5 or more acres that are part of such a forested area shall conserve in perpetuity a minimum of 50% of the core forest on the parcel and shall locate all development on the portion of the parcel outside the core forest to the greatest extent feasible.



Bennington Land Use Regulations (2006)

8.4. Preservation of Rural Character

(C) **Wildlife Habitat.** Subdivision boundaries, lots and Development Envelopes shall be located and configured to minimize adverse impacts on critical wildlife habitat, including travel corridors, identified in the Bennington 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 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. In determining the appropriate buffer area, the Development Review Board may consult with the Vermont Fish and Wildlife Department.

(2) To avoid the fragmentation of wildlife habitat, including core habitat and connecting travel corridors, the Board 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 those values and function. The Board may also consult with Vermont Fish and Wildlife Department staff prior to issuing a decision.