

# Informing Land Use Planning and Forestland Conservation Through Subdivision and Parcelization Trend Information

## Phase II Report



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Dear Reader,

In September 2010, the Vermont Natural Resources Council (VNRC) published a report entitled “Informing Land Use Planning and Forestland Conservation Through Subdivision and Parcelization Trend Information.”<sup>1</sup> The report sought to understand how zoning affects subdivision rates and it contained findings from an analysis in eight towns across Vermont.

Now in Phase II of the project, VNRC has conducted a second round of analysis in fourteen additional towns: *Bolton, Brandon, Dorset, Fayston, Hardwick, Huntington, Jericho, Marlboro, Monkton, Morristown, Richmond, Shrewsbury, Tinmouth and West Windsor*. VNRC examined subdivision trends in each of these towns between 2002 and 2010 to ground truth findings from the Phase 1 report, and build a better understanding about zoning and subdivision in Vermont.

The Phase II study seeks to understand whether there is a correlation between certain types of zoning districts and subdivision patterns. To answer this question, VNRC examined the zoning districts and their corresponding characteristics in all fourteen towns, created a typology that describes “Natural Resources Districts” and “Rural Residential Districts,” and then analyzed subdivision trends accordingly.

VNRC also examined key questions such as the degree to which Act 250 applies to subdivisions in Vermont, and the implications of subdivision activity on the Use Value Appraisal (UVA or Current Use) Program.

We hope the information contained in this report will help guide local, regional and state officials to implement sound land use planning and policy related to development in forestland.

*-The Staff at VNRC*

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<sup>1</sup> The Phase I report can be downloaded at: <http://www.vnrc.org/subdivisionreport/>.

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Figure 1: Phase I and II Case Study Communities

Phase I Case Study Communities 2002-2009

| Town          | Total Subdivisions | Total Acreage | Total Acreage Subject to Act 250 | Total 50-100 acre parcels |           | Total 100+ acre parcels |           | Total Lots Created*** | Mean Number of Lots | Mean Lot Size (acres) | Median Lot Size (acres) |
|---------------|--------------------|---------------|----------------------------------|---------------------------|-----------|-------------------------|-----------|-----------------------|---------------------|-----------------------|-------------------------|
|               |                    |               |                                  | Before                    | After     | Before                  | After     |                       |                     |                       |                         |
| Bennington    | 43                 | 955           | -                                | 3                         | 3         | 1                       | 1         | 158                   | 3.7                 | 6                     | 3.2                     |
| Calais        | 38                 | 1,300         | -                                | 5                         | 5         | 2                       | 2         | 86                    | 2.3                 | 15.1                  | 7.1                     |
| Elmore        | 25                 | 939           | -                                | 5                         | 3         | 1                       | 0         | 71                    | 2.8                 | 13.5                  | 7.5                     |
| Fletcher      | 38                 | 2,855         | -                                | 8                         | 4         | 9                       | 8         | 126                   | 2.6                 | 22.7                  | 6.8                     |
| Hinesburg     | 69                 | 5,556         | -                                | 10                        | 6         | 21                      | 19        | 220                   | 3.2                 | 25.3                  | 3.6                     |
| Middlesex     | 40                 | 1,651         | -                                | 8                         | 4         | 3                       | 2         | 111                   | 2.8                 | 14.9                  | 5.7                     |
| Norwich       | 29                 | 1,749         | -                                | 6                         | 4         | 5                       | 5         | 66                    | 2.3                 | 26.5                  | 10.1                    |
| Stowe         | 99                 | *9,550        | -                                | 13                        | 20        | 10                      | 4         | 321                   | 2.3                 | 29.8                  | 10.1                    |
| <b>Totals</b> | <b>381</b>         | <b>24,555</b> | -                                | <b>58</b>                 | <b>49</b> | <b>52</b>               | <b>41</b> | <b>1,159</b>          |                     |                       |                         |

Phase II Case Study Communities 2002-2010

| Town          | Total Subdivisions | Total Acreage | Total Acreage Subject to Act 250** | Total 50-100 acre parcels |           | Total 100+ acre parcels |           | Total Lots Created*** | Mean Number of Lots | Mean Lot Size | Median Lot Size |
|---------------|--------------------|---------------|------------------------------------|---------------------------|-----------|-------------------------|-----------|-----------------------|---------------------|---------------|-----------------|
|               |                    |               |                                    | Before                    | After     | Before                  | After     |                       |                     |               |                 |
| Bolton        | 14                 | 13,613        | 20,156                             | 0                         | N/A       | 7                       | 11        | 50                    | 3.57                | 272.27        | 12.15           |
| Brandon       | 61                 | 3,438         | 142                                | 8                         | 6         | 11                      | 8         | 149                   | 2.4                 | 23.1          | 5.6             |
| Dorset        | 22                 | 1,688         | 6                                  | 3                         | 1         | 6                       | 4         | 68                    | 3.1                 | 24.8          | 10.5            |
| Fayston       | 49                 | 2,935         | 956                                | 7                         | 3         | 9                       | 5         | 143                   | 2.9                 | 20.5          | 5.9             |
| Hardwick      | 52                 | 3,298         | 176                                | 15                        | 8         | 11                      | 9         | 122                   | 2.4                 | 27.0          | 6.5             |
| Huntington    | 15                 | 2,225         | 1,841                              | 3                         | 2         | 3                       | 2         | 51                    | 3.4                 | 43.6          | 6.5             |
| Jericho       | 35                 | 2,669         | 770                                | 7                         | 4         | 8                       | 8         | 138                   | 3.9                 | 19.3          | 3.1             |
| Marlboro      | 29                 | 1,783         | 0                                  | 8                         | 6         | 5                       | 4         | 69                    | 2.4                 | 25.8          | 10.1            |
| Monkton       | 51                 | 3,679         | 57                                 | 14                        | 6         | 8                       | 6         | 177                   | 3.5                 | 20.8          | 5.1             |
| Morristown    | 103                | 3,418         | 202                                | 13                        | 9         | 6                       | 3         | 326                   | 3.2                 | 10.5          | 3.5             |
| Richmond      | 33                 | 1,452         | 292                                | 4                         | 3         | 4                       | 4         | 103                   | 3.1                 | 14.1          | 2.4             |
| Shrewsbury    | 24                 | 2,344         | 0                                  | 4                         | 2         | 7                       | 5         | 50                    | 2.1                 | 46.9          | 10.3            |
| Tinmouth      | 16                 | 1,835         | 0                                  | 3                         | 2         | 7                       | 4         | 51                    | 3.2                 | 36.0          | 10.0            |
| West Windsor  | 40                 | 1,896         | 200                                | 10                        | 4         | 5                       | 3         | 83                    | 2.1                 | 22.8          | 10.4            |
| <b>Totals</b> | <b>544</b>         | <b>46,272</b> | <b>24,798</b>                      | <b>99</b>                 | <b>56</b> | <b>97</b>               | <b>76</b> | <b>1,580</b>          |                     |               |                 |

\*If the two two-lot subdivisions involving the Trapp Family Lodge were not included, then the total acreage involved would be 4,440. \*\*ANR's Act 250 Permit Database contained records of subdivisions that were not found in the town's records, including the following acreage: Bolton (7,767), Fayston (3.8), Huntington (125.59), Jericho (84), Morristown (11.95), and Richmond (47.6). These figures have been incorporated into the Act 250 analysis only, and are therefore reflected in the "Total Acreage Subject to Act 250" column shown in this table and the totals found in *B: Act 250 Review* (p. 8).

\*\*\*Includes the original parcel.

# I. Observations & Findings

## A. Incremental Nature of Subdivision

### Phase I and II: Findings

**Subdivision is occurring incrementally across the state.**

Subdivision activity that is occurring in Vermont is resulting in increased parcelization; meaning more lots are being created on an original piece of land. In the Phase I study, 1,159 lots were created from 381 subdivisions on 24,555 acres of land. In the Phase II study, 1,580 lots were created from 544 subdivisions on a total of 46,272 acres of land.

It is important to note that while a significant number of lots were created in both phases of this study, most subdivisions resulted in a relatively small number of lots at a time (see Figure 2).

For example, in the Phase I study, the average subdivision resulted in the creation of between 2.3 and 3.7 lots (this includes the “parent parcel” or the original lot prior to subdivision).<sup>1n</sup> In the Phase II study, the findings were nearly identical: the average subdivision resulted in the creation of between 2.1 and 3.9 lots (again, this includes the parent parcel).

While some subdivisions result in the creation of many lots, these statistics confirm that by and large, subdivision activity occurs on an incremental basis. This highlights the fact that we must understand the cumulative effects of subdivision activity in order to truly understand the impacts of development in Vermont.

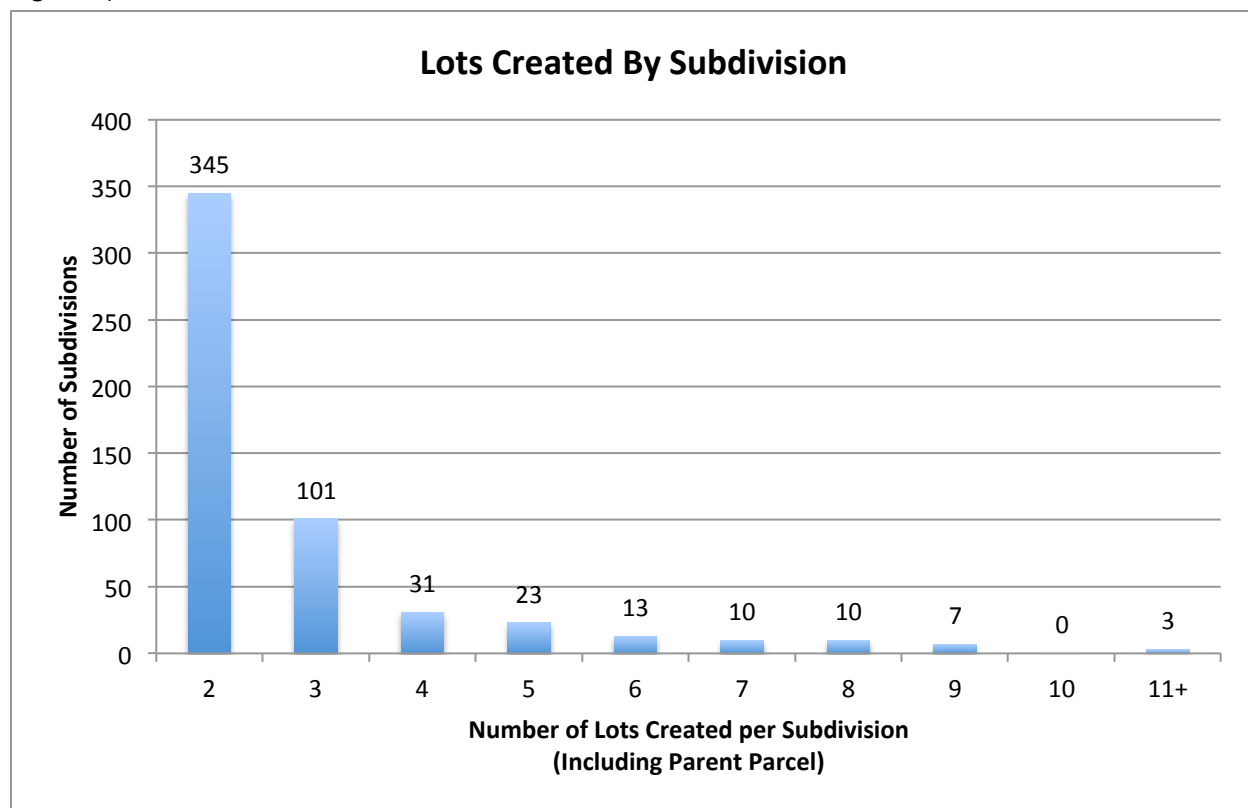


Figure 1

## Phase I and II: Conclusions

### **1. Subdivision activity in Vermont does not look like the subdivision activity commonly seen in other parts of the country and usually portrayed by the media.**

The term “subdivision” usually conjures up images of suburban neighborhoods carved into small parcels with identical houses situated side-by-side. Because of the discrepancy between how the public collectively imagines subdivision and the reality of such activity, Vermonters are susceptible to thinking that subdivision is not a problem. Indeed, when asked about subdivision, many Vermonters may tell you that subdivision is only a problem in Chittenden County. However, our research, which includes 22 towns from 10 counties, confirms that subdivision is a widespread phenomenon.

### **2. The majority of subdivisions in towns with zoning and subdivision regulations are not triggering Act 250 review based on the number of resulting lots.**

As will be explained later, subdivision activity that results in roughly 2-4 lots does not typically trigger Act 250 review. This means that the majority of subdivisions are being reviewed at the local level, but only if towns have zoning and subdivision regulations; a 2011 study reported that only 51% of Vermont towns have subdivision regulations.)<sup>2</sup>

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<sup>2</sup> *Wildlife Considerations in Local Planning: An Evaluation of a Decade of Progress in Vermont*. Prepared by the Vermont Natural Resources Council. Feb. 2011. P. 8. Website: <http://vnrc.org/wp-content/uploads/2012/08/Wildlife-Considerations-in-Local-Planning1.pdf>.

## B. Act 250 Review

It is a long held assumption that a large percentage of subdivision development in Vermont is subject to Act 250 review. Both the Phase I and II studies show this assumption to be false.

### Jurisdictional Triggers in Act 250

Before exploring the data, it is important to first understand the different ways in which a subdivision – *the division of one parcel into one or more resulting lots* – can trigger Act 250 review:

**Original jurisdiction.**<sup>3</sup> If the parcel has never been through the Act 250 process before, an Act 250 permit is required if the project is defined as a “development” or “subdivision” in Act 250.<sup>4</sup>

- **Development** means the construction of improvements on ten or more acres of land (within five miles of any involved land) for commercial or industrial purposes in towns with both permanent zoning and subdivision regulations. If a town does not have both of these permanent regulations, then the threshold is set at one or more acres. Additionally, towns with both regulations may opt into the one or more acre threshold. Development can also mean the construction of a housing project with 10 or more units within five miles of any involved land, and within a five-year period. Finally, development includes construction

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<sup>3</sup> In the Phase I report, the phrase “...independently trigger[ed] Act 250 jurisdiction...” (p. 25) is used in place of “original jurisdiction.” While the terms may differ, the meaning is the same in each report. Website: <http://www.vnrc.org/subdivisionreport/Full%20Subdivision%20Report%20with%20Appendices.pdf>.

<sup>4</sup> “Subdivision” and “development” are defined at 10 V.S.A. § 6001. The Natural Resources Board’s summary of Act 250 jurisdiction and process is available at: <http://www.nrb.state.vt.us/lup/publications/nrb2.pdf>.

of improvements for residential use above 2,500 feet in elevation.

- **Subdivision** means the creation of 10 or more lots in five years within five miles or the same district for towns with both permanent zoning and subdivision regulations. If a town does not have both of these permanent regulations, then the threshold is set at six or more lots within five years.

For this study, VNRC examined subdivision activity at the local level – *the division of one parcel into one or more resulting lots* – and then determined, on a case-by-case basis, whether a given subdivision was subject to Act 250 review. Construction projects that did not involve subdivision at the local level, but which may have triggered Act 250 review, were not assessed in this study.

**Amendment jurisdiction.**<sup>5</sup> If the land is already subject to an Act 250 permit, a permit amendment is required for any “material change” to the permitted project. A change is material if it has the potential for significant adverse impact under one or more Act 250 criteria.

**Substantial Change to Grandfathered Project.** Projects that have been operating since June 1, 1970 do not require an Act 250 permit unless a substantial change is made to that project. A change that could cause a significant adverse impact under one or more Act 250 criteria is a substantial change.

### Phase II: The Numbers

The following figures include all subdivisions that were listed between 2002 and 2010 in the

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<sup>5</sup> In the Phase I report, the phrase “jurisdiction...due to prior development” (p. 25) is used in place of “amendment jurisdiction.” While the terms differ, the meaning is the same in each report. Website: <http://www.vnrc.org/subdivisionreport/Full%20Subdivision%20Report%20with%20Appendices.pdf>.



Phase II towns' records and any additional records that were found in the Vermont Agency of Natural Resources' online Act 250 Database, but not recorded at the town level.<sup>6</sup> There were a total of:

- **14 Towns**
- **555 Subdivisions**
- **54,312 Acres**
- **1,662 Resulting Lots**

**Of these 555 subdivisions, the following were subject to Act 250 review:**

|                              |        |     |
|------------------------------|--------|-----|
| Total Number of Subdivisions | 55     | 10% |
| Total Acres                  | 24,797 | 46% |
| Total Resulting Lots         | 338    | 20% |

**Of the 55 subdivisions that were subject to Act 250 review, they triggered review due to:**

➤ **Original Jurisdiction Only**

|                              |     |    |
|------------------------------|-----|----|
| Total Number of Subdivisions | 7   | 1% |
| Total Acres                  | 794 | 1% |
| Total Resulting Lots         | 145 | 9% |

- **Amendment Jurisdiction** (however, original jurisdiction would have also applied)<sup>7</sup>

|                              |       |     |
|------------------------------|-------|-----|
| Total Number of Subdivisions | 6     | 1%  |
| Total Acres                  | 5,475 | 10% |
| Total Resulting Lots         | 59    | 4%  |

<sup>6</sup> Eleven additional subdivisions were recorded as taking place in the 14 Phase II towns in ANR's online Act 250 database, but were not recorded in municipal records. These subdivisions, their total acreage, and total number of resulting lots were factored into the Act 250 analysis for this report, but were omitted from all other areas of inquiry, including the case studies. The Act 250 database can be found online at:

<http://www.anr.state.vt.us/site/cfm/act250/index.cfm>.

<sup>7</sup> This category includes subdivisions that required a permit amendment, but would have been subject to original jurisdiction if located on land not already covered by an Act 250 permit.

➤ **Amendment Jurisdiction Only**

|                              |        |     |
|------------------------------|--------|-----|
| Total Number of Subdivisions | 42     | 8%  |
| Total Acres                  | 18,529 | 34% |
| Total Resulting Lots         | 134    | 8%  |

Eighty-eight percent of the acreage that received an Act 250 subdivision permit in the Phase II Study (21,845 of 24,797 acres) came from just eight subdivisions, each of which involved a parent parcel of 500 or more acres (see Figure 4). Furthermore, all eight of these subdivisions triggered Act 250 amendment jurisdiction, although one would have triggered original jurisdiction due to development above 2,500'. Of the eight subdivisions, six involved land in Bolton, and two involved land in Huntington.

This means that a small number of the subdivisions that triggered Act 250 jurisdiction (eight out of 55, or 15%) accounted for 88% of the acreage reviewed under Act 250, and most of them only because there was a material change to an existing permit.

**Phase I and II: Findings**

In the Phase I study, VNRC found that only four of the 381 subdivisions (or 1%) would have triggered original jurisdiction under Act 250.

**In the Phase II study, VNRC found that only seven of the 555 subdivisions (again 1%) triggered original jurisdiction under Act 250 review.**

It is worth noting that six more subdivisions required an amendment to an existing Act 250 permit, but would have triggered original jurisdiction had they not been on land that was already subject to an Act 250 permit. Finally, 42 additional subdivisions triggered Act 250 review based on amendment jurisdiction only.

This means that a total 55 out of 555 or 10% of the subdivisions in the 14 case study towns were reviewed under Act 250.

## Phase I and II: Conclusions

- 1. The majority of subdivision activity does not trigger Act 250 review.**
- 2. Subdivision proposals are being reviewed mostly at the local level, but only in communities that have either (1) stand-alone subdivision regulations (which is only approximately half of the towns in Vermont), or (2) a provision in the zoning bylaw that considers subdivision.<sup>8</sup>**

This assumption is based on the fact that the average subdivision resulted in between 2.1 and 3.9 lots in the Phase I and II studies. The high end of this range still falls below the minimum threshold (six resulting lots) needed to trigger Act 250 review in communities without both types of regulations.

Additionally, for those subdivisions that were reviewed under Act 250 in the Phase II study:

- 3. The overwhelming majority of acreage subject to Act 250 was reviewed under amendment jurisdiction, rather than original jurisdiction.**

This highlights the fact that Act 250 review mostly occurs on the same tracts of land as these parcels are further developed or subdivided. Absent an existing Act 250 permit, the majority of acreage would have been subject to local review only, not that of Act 250.

- 4. The majority of acreage reviewed under Act 250 involved land in only two of the 14 Phase II towns (Bolton and Huntington).**

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<sup>8</sup> *Wildlife Considerations in Local Planning: An Evaluation of a Decade of Progress in Vermont*. Prepared by the Vermont Natural Resources Council. Feb. 2011. P. 8. Website: <http://vnrc.org/wp-content/uploads/2012/08/Wildlife-Considerations-in-Local-Planning1.pdf>.

### Number and Size of Parent Parcels Reviewed Under Act 250

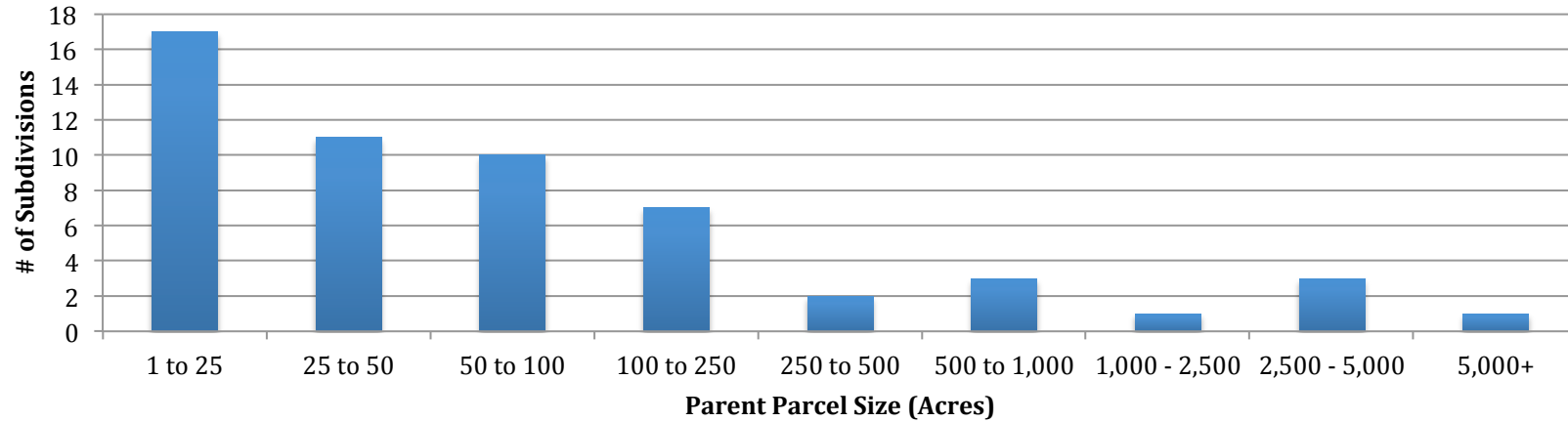


Figure 3

### Total Acres Reviewed Under Act 250 in Specific Parent Parcel Acreage Categories

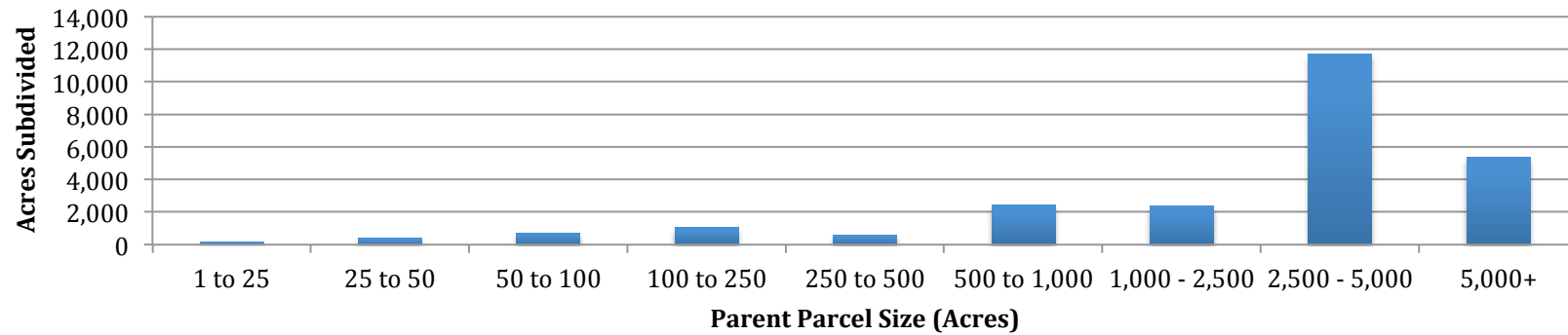


Figure 4

## C. Subdivision Activity in Specific Acreage Categories

### Phase I and II: Findings

#### *Viability of Forest Management on Resulting Parcels*

In both the Phase I and II studies, VNRC tried to understand how subdivision patterns affect the viability of parcels to contribute to forest management. Many natural resource professionals consider 50 acres to be a minimum parcel size for viable long-term forest management. Vermont's Use Value Appraisal (UVA) Program, commonly referred to as Current Use, however, allows parcels down to 25 acres to be enrolled in the Program to support forest management.

Since smaller parcels can provide forest management opportunities and valuable ecological functions, it is arbitrary to assume that parcels under 50 acres are not important to maintaining the viability of forest and wildlife functions. However, for purposes of this study, we assumed that the smaller the parcel size, the more challenging it is to maintain forest management options.

In the Phase II study, VNRC found that **only approximately half (56.6%) of subdivisions (with a parent parcel of 50 – 100 acres) retained at least one lot (after subdivision) of 50+ acres**. This pattern was also observed in the Phase I study. This finding is important because it indicates that when 50-100 acre parent parcels are subdivided, they are at risk of losing their long-term viability for forest management and resource functions.

As might be expected, the risk is diminished in larger parent parcel acreage categories. Indeed, VNRC found that **when 100+ acre parent parcels were subdivided, they typically retained at least one large lot of 50 acres or more, in addition to the other smaller lots that**

**were created**. This pattern was first observed in the Phase I study and then confirmed in the Phase II study: 96.9% of all subdivisions (with a parent parcel of 100+ acres) in the Phase II towns retained at least one lot of 50+ acres after subdivision, thereby preserving some viability for maintaining forest functions and active management opportunities.

#### *Implications for Current Use*

VNRC also examined the impact that subdivision of 50-100 acre and 100+ acre parent parcels had on eligibility for the UVA (or "Current Use") Program in Phase II towns.

The Current Use Program, which is run by the State of Vermont, helps ensure that forests and farms are taxed for their productive use, rather than their development value. In order to be eligible, a forested parcel must be at least 25 acres or larger with two additional acres if a dwelling is present. This Program reduces the tax burden on landowners, creating an incentive to keep land intact rather than subdividing and selling it.

Consider the following:

- **Subdivisions in the 50-100 acre and 100+ acre parent parcel categories almost always resulted in at least one lot (after subdivision) that was *potentially eligible* for the UVA Program.<sup>9</sup>**

Ninety-nine subdivisions involved a parent parcel that was 50-100 acres in size. Of these, 95 subdivisions (or 96%) resulted in at least one

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<sup>9</sup> In the Current Use Program, a parcel without a residence must be at least 25 acres or larger, while a parcel with a residence must be at least 27 acres or larger. Although local subdivision records will sometimes include a note on whether the landowner intends to build a residence, these records do not confirm whether construction actually occurs, nor should they be considered comprehensive. Accordingly, VNRC assessed parcel eligibility for the UVA Program on the basis of the lower acreage threshold (25 acres).

lot that was potentially eligible for the UVA Program.

Ninety-seven subdivisions involved a parent parcel that was 100+ acres in size. Of these, all 97 subdivisions (or 100%) resulted in at least one lot that was potentially eligible for the UVA Program.

- **Subdivision increased the number of parcels potentially eligible for Current Use.**

In the 50-100 acre category: before subdivision, all 99 parent parcels were eligible for the UVA Program (meaning, a parcel was 25+ acres in size). After subdivision, 117 parcels were eligible – an increase of 18 lots.

In the 100+ acre category: before subdivision, all 97 parent parcels were eligible for the UVA Program. After subdivision, 137 parcels were eligible – an increase of 40 lots.

- **Subdivision decreased the number of acres potentially eligible for Current Use.**

In the 50-100 acre category: Before subdivision, 7,108 acres were potentially eligible for the UVA Program. After subdivision, only 5,808 acres were left in parcels of 25+ acres. This means that 1,300 acres (18%) were no longer eligible for Current Use.

In the 100+ acre category: Before subdivision, 33,027 acres were potentially eligible for the UVA Program. After subdivision, only 31,546 acres were left in parcels of 25+ acres. This means that 1,481 acres (4%) were no longer eligible for Current Use.

## Phase I and II: Conclusions

These findings are significant for several reasons:

1. **The statistics suggest that the UVA Program might influence subdivision activity.**

It is significant that when subdividing larger parcels, landowners almost always preserve at least one lot that is potentially eligible for the Current Use Program. It is hard to know whether landowners deliberately subdivide with the intention of enrolling land in the Current Use Program, but it is reasonable to assume that the tax benefits of the Program may influence subdivision patterns.

Still, while the subdivision of a larger lot usually results in at least one parcel that is eligible for the Current Use Program, the other resulting lots are often not large enough to be eligible. This pattern is especially prevalent when the original parcel being subdivided is 50-100 acres in size. Planning Commissions and Development Review Boards should encourage subdivision patterns that promote a greater retention of large lots when subdivisions occur in this acreage category.

2. **Subdivision is increasing the number of parcels that are eligible for the UVA Program.**

This means that education of landowners during and after subdivision is critical if these lands are to be enrolled in the Current Use Program. This role could be filled by the State of Vermont – although increased funding for county foresters would probably be necessary – and by non-profit and forestry organizations, and local citizen action groups, such as Conservation Commissions or Regional Conservation Partnerships (RCPs).

**3. These statistics suggest an increased administrative burden on the State of Vermont, which implements the UVA Program.**

The Current Use Program continues to see strong gains in the enrollment of forestland in Vermont. This study confirms this trend and suggests that continued Program growth is partially due to subdivision patterns, the result of which is an increase in the number of UVA eligible parcels. As subdivision increases, county foresters and administrators will need to keep pace with the increasing burden of new parcels being created and enrolled in the Current Use Program.

**4. Vermont is losing forestland (in terms of overall acreage) that would have otherwise been eligible for the UVA Program.**

While subdivision is creating more parcels that can be enrolled in the Current Use Program, the overall amount of acreage that is eligible to be enrolled is actually decreasing. Subdivision is creating smaller parcels that fall beneath the Program's eligibility threshold, which in turn results in more land that is at an increased risk of being developed.

## D. Subdivision Activity in Wildlife Habitat Blocks

### Phase II: Findings

#### *The Effect of Subdivision on Wildlife Habitat Blocks*

As part of the Phase II Report, VNRC commissioned a spatial analysis of four case study towns to examine the impact of subdivision activity on wildlife habitat blocks.

The Vermont Agency of Natural Resources (ANR) manages the Geographic Information Systems (GIS) habitat block data layer for the State of Vermont. Habitat blocks represent areas that were larger than 20 acres and included contiguous forest and other natural habitats that were unfragmented by roads, development, or agriculture at the time of survey.<sup>10</sup>

The Phase II spatial analysis overlapped habitat blocks, zoning district boundaries, and parcels that were subdivided during the study period (2002-2010). While financial constraints only allowed for the mapping of four communities, the results all pointed to the same conclusion – parcelization (a well known precursor to fragmentation) is occurring within wildlife habitat blocks.

| Town         | Percent of Subdivided Acres in Wildlife Habitat Blocks |
|--------------|--|
| Fayston      | 68.8%  |
| Morristown   | 57.7%  |
| Richmond     | 66.65%   |
| West Windsor | 50%  |

Figure 5

<sup>10</sup> Vermont Agency of Natural Resources, Fish & Wildlife Department. "Vermont Habitat Blocks and Wildlife Corridors" data layer. Metadata at: [http://anrmaps.vermont.gov/websites/vgisdata/layers\\_and\\_r/metadata/EcologicHabitat\\_HABITATBLKS.txt](http://anrmaps.vermont.gov/websites/vgisdata/layers_and_r/metadata/EcologicHabitat_HABITATBLKS.txt).

### *Encroachment into Core Habitat Area*

ANR also developed a data layer that shows the core area of wildlife habitat blocks; the core area is defined by buffering 150 meters inside each habitat block to eliminate forest edge in order to focus on the deep forest area. By overlaying subdivided parcels on top of the core area boundaries, we found that the core forest area in case study communities is being encroached upon in small increments.

| Town         | Number of Mapped Subdivisions That Encroached Upon Core Area | Percent of Core Habitat Area That Was Encroached Upon by Subdivision Activity |
|--------------|--|---|
| Fayston      | 21 out of 45   | 5.2%  |
| Morristown   | 21 out of 99   | 3.9%  |
| Richmond     | 11 out of 32   | 4.7%  |
| West Windsor | 8 out of 40  | 2.5%  |

Figure 6

### Phase II: Conclusions

#### **1. Wildlife habitat is being parcelized by subdivision.**

Between 50% and 68.8% of the subdivided acres in four Phase II communities (2002-2010) were located within wildlife habitat blocks.

#### **2. The core area of the wildlife habitat blocks is being encroached upon in small increments by subdivision.**

Between 2.5% and 5.2% of the core habitat area within four Phase II communities was encroached upon by subdivisions that took place between 2002 and 2010.

## E. Natural Resource Districts

### Phase II: Natural Resource District Typology

In the Phase II study, VNRC examined “Natural Resource” type districts (a broader category than just “forest” or “conservation” districts). To do this, VNRC scrutinized Natural Resource (NR) type districts, or those that generally shared the following characteristics during the study period (2002-2010):

- *Little to no residential development is allowed with minimum lot sizes between 0.5 and 40 acres.*

The most popular minimum lot sizes were 25 and 10 acres respectively. Ten out of 36 NR type districts had a 25 acre minimum lot size, while an additional eight NR type districts had a 10 acre minimum lot size. Additionally, 13 districts did not specify a minimum lot size (in some instances, this was due to a NR overlay in which the underlying district’s minimum lot size was upheld).

- *The primary purpose of the district is to conserve or protect important or fragile natural resources, sometimes in addition to supporting working lands endeavors.*

For example, important or fragile natural resources might include: forests, wildlife, habitat, water resources like wetlands, vernal pools, and groundwater. Working lands usually include agriculture and forest related uses.

- *Single-family residences are sometimes permitted or considered conditional uses; however, there are also many instances in which they are prohibited.*
- *Two-family and multi-family residences are occasionally allowed, but oftentimes prohibited.*

- *Agriculture is usually permitted or considered to be a conditional use; forestry is usually permitted.<sup>11</sup>*

### Phase II: Qualifying NR Districts

Based on the Natural Resource (NR) District typology described above, the authors found a total of 37 NR districts in the 14 phase II towns. Flood hazard districts were not included in the NR typology (see *IV. Methodology* on p. 26 for details).

Subdivision activity took place within NR districts in 11 out of the 14 towns during the study period (see Figure 7); there was no subdivision activity within the NR districts in

| Town       | NR Districts  |
|------------|---|
| Bolton     | Forest District, Conservation District  |
| Brandon    | Aquifer District, Conservation District (2002-2006 only)  |
| Dorset     | Forest I District, Forest II District, Public Water (Aquifer) Protection District, Ridgeline and Mountainside Conservation Overlay Zone   |
| Fayston    | Soil and Water Conservation District, Forest District   |
| Hardwick   | Forest Reserve District   |
| Huntington | Conservation District, Woodland District  |
| Jericho    | Open Space District, Conservation District (2002-2009, became Forestry District in 2010), Agricultural District*, Wetlands Overlay, Wellhead Protection Area Overlay, Natural Resources Overlay |
| Marlboro   | Resource Production District, Resource Conservation District  |
| Monkton    | Wetland District, Forest District   |

<sup>11</sup> Municipalities do not have the authority to regulate accepted agricultural and silvicultural practices (24 V.S.A. §4413(d) lists limitations on municipal bylaws); many towns, including some of the case study communities, nonetheless list agriculture and forestry in their zoning as "permitted" uses, so we have included it here as a "common characteristic" of NR districts.



Marlboro, Richmond, and West Windsor.

|   |  |
|---|--|
| Morristown  | Environmental Protection Areas Overlay, Groundwater Source Protection Areas Overlay  |
| Richmond  | Shoreline Protection Zone Overlay (mapped as "Surface Water Overlay District")   |
| Shrewsbury  | High Elevation District, Special Features Overlay, Limited Residential District*   |
| Tinmouth  | Protection District, Conservation District, Agricultural Overlay, Ridgeline Protection Overlay (est. 2010)   |
| West Windsor                                      | Agricultural/Scenic District (2002-2008), Upland/Forestry District (2002-2008), Conservation District (est. 2008, incorporates old Upland/Forestry District) |
| * = Difficult to categorize as NR or RR District. |  |

Figure 7

### Phase II: District Size

In the phase II towns, the total acreage within NR type districts was often, but not always, less than the total acreage in RR type districts.

A visual analysis of available zoning maps for each community during the study period revealed that seven towns had a higher percentage of land in RR districts, compared to four towns that had a higher percentage of land in NR districts. Additionally, one town began the study period with more land in NR, but finished the period with higher acreage in RR (due to zoning changes). One town did not have adequate maps and another town contained a district that could be categorized as either NR or RR district – these two were therefore omitted.

GIS mapping of four of the 14 phase II towns confirmed that the following communities had more land in RR type districts (see Figure 8).

| Town         | Total Acreage in Natural Resource Type Districts | Total Acreage in Rural Residential Type Districts |
|--------------|--|---|
| West Windsor | 2,554.3  | 12,390.7  |
| Fayston      | 9,132.5  | 13,650  |
| Morristown   | 3,614.57   | 30,718.4  |
| Richmond     | 505.53   | 19,283.68   |

Figure 8

### Phase II: District Overlap With Large Wildlife Habitat Blocks

A GIS mapping analysis of four of the 14 Phase II towns showed that the majority of acreage in the NR districts overlapped with large wildlife habitat blocks. For instance:

- **87%** of West Windsor’s Agricultural/Scenic, Upland/Forestry, and Conservation districts overlapped with large wildlife habitat blocks;
- **98.6%** of Fayston’s Forest district and Soil & Water Conservation district overlapped with large habitat blocks;
- **83.6%** of Morristown’s Environmental Protection Area overlay district and **70.3%** of the Groundwater Source Protection Area overlay district overlapped;
- **70%** of Richmond’s Surface Water overlay district overlapped.

### Phase I and II: Findings

In both the Phase I and II studies, VNRC found that **very little subdivision activity (both in terms of the number of subdivisions and total acreage) took place fully or partially within natural resource related districts.**

In the Phase I study, few subdivisions were located within forest or conservation districts (the one exception was Middlesex, which was more comparable to a rural residential district in terms of allowable density, existing land uses and physical characteristics).

In the Phase II towns, **only 15% of all subdivisions and 22% of the total acres subdivided were located either partially or fully within a NR district.**

These statistics are impressive and beg the question of why so few subdivisions are taking place in NR districts? Here are a few theories:

**1. There is less subdivision activity in NR districts because those lands tend to be less suitable for development.**

Lands at higher elevations tend to be less suitable for development (and therefore easier to include in a more restrictive zoning district) for various reasons: accessibility, steep slopes, and distance from existing roads and utility lines, to name a few. Among the 14 Phase II towns, 36 districts were classified as falling into the NR category, and 12 of those had purpose statements that specifically referenced high elevations (see Figure 9).<sup>12</sup>

Additionally, many of the other NR districts have purpose statements that indicate coverage of lands with steep slopes, shallow soils, and other areas that would be highly sensitive to development.

Mapping of NR districts in four of the 14 Phase II towns showed that lands with high slopes (25% or greater) appeared to be disproportionately located within underlying NR districts as opposed to RR districts. For instance, 73% of the land in West Windsor’s Upland Forestry district is comprised of steep slopes, compared to just 19.5% of the Rural Residential district. The same was true of Fayston where 72% of the lands in the Forest district and 67% of the lands in the Soil and Water Conservation District were comprised of steep slopes, compared to just 19% in the Rural Residential

<sup>12</sup> Please note that this number is based on purpose statement reviews only. It is very likely that the number of NR districts that cover high elevation lands is actually higher; one way to determine this would be to compare zoning districts with elevation maps.

District. (Please note that the slope maps can be found after the case studies for Fayston (p. 34), Morristown (p. 40), Richmond (p. 41), and West Windsor (p. 44).)

| Town and District   | Elevation   |
|---|---|
| Bolton Forest District                                      | 1,500+ ft.  |
| Bolton Conservation District                                | 2,500+ ft.  |
| Brandon Conservation District                               | 1,500+ ft.; > 20% slopes.                           |
| Dorset Forest I District                                    | 2,000+ ft.  |
| Dorset Forest II District                                   | 1,600 - 2,000 ft.                                   |
| Dorset Ridgeline and Mountainside Conservation Overlay Zone | 1,100+ ft. west of Rt. 7 and 900+ ft. east of Rt. 7 |
| Huntington Conservation District                            | 2,000+  |
| Huntington Woodland District                                | 1,500 - 2,000 ft.                                   |
| Morristown Environmental Protection Area Overlay            | 2,500+ ft.  |
| Shrewsbury High Elevation District                          | 2,300+ ft.  |
| Tinmouth Protection District                                | Lands of high elevation.                            |

Figure 9

In towns that did not have an underlying NR district, but instead only had NR overlay districts, the results were either mixed or showed that the RR district actually had a higher percentage of land in steep slopes. For example, in Morristown, an impressive 47.3% of the lands in the Groundwater Source Protection Area (GSPA) overlay were in steep slopes, but then only 7.6% of the land was steep in the Environmental Protection Area (EPA) overlay. In Morristown’s RR districts, the percentages were lower than the GSPA overlay, but higher than the EPA overlay districts: 16% in the Rural Residential with Agriculture district and 21.7% in the Rural Residential with Agriculture and Special Industry district. In Richmond, the Surface Water overlay district only had 9% of

the land in steep slopes, compared to 35% in the Agriculture/Residential district.

The mapping sample of just four towns is too few to draw conclusions on whether a greater percentage of steep slopes is concentrated in NR or RR districts; a future study that prioritizes mapping subdivisions in more towns would be beneficial in this regard.

**2. The lands in NR districts tend to already be conserved and therefore difficult, if not impossible, to subdivide and develop.**

The limited available evidence suggests that NR districts are more likely to contain conserved lands than RR districts.

Some evidence was found in the Phase II town plans and zoning regulations. For example, Jericho's Open Space district is explicitly described as encompassing lands that are held by public organizations, such as the Ethan Allen Firing Range, the University of Vermont's Research Forest, Mobbs Farm and more.

Additionally, VNRC was able to conduct a spatial analysis of four of the 14 Phase II towns. This limited mapping exercise showed that underlying NR districts tend to have a much higher percentage of conserved lands compared to RR districts. For instance, in West Windsor, 66.2% of the Upland Forestry district is conserved, compared to just 6% of the Rural Residential district. The same was true of Fayston where 26.5% of the Forest district and 42.3% of the Soil and Water Conservation District are conserved, compared to just 13.4% of the Rural Residential District. *(Please note that the zoning maps, which show conserved lands, can be found after the case studies for Fayston (p. 34), Morristown (p. 40), Richmond (p. 41), and West Windsor (p. 44).)*

In towns that did not have an underlying NR district, but instead only had NR overlay districts, the results were either mixed or showed that the RR district actually had a

higher percentage of land conserved. For example, in Morristown, an impressive 51% of the lands in the GSPA overlay are conserved, compared to only 8.5% of those in the EPA overlay. In Morristown's RR districts, the percentages were lower than the GSPA overlay, but higher than the EPA overlay districts: 21.4% in the Rural Residential with Agriculture and 13.4% in the Rural Residential with Agriculture and Special Industry districts. In Richmond, only 6% of the lands in the Surface Water overlay district are conserved, compared with 16% in the Agricultural/Residential district.

The mapping sample of just four towns is too few to draw conclusions on whether NR or RR districts tend to have a greater percentage of conserved lands; a future study that prioritizes mapping subdivisions in more towns would be beneficial in this regard.

**3. Larger minimum lot sizes in NR districts mean that there are fewer opportunities for subdivision when compared to RR districts.**

Minimum lot sizes are typically much higher in NR districts than RR districts, which means that there is less opportunity to subdivide a parcel into ever-smaller lots (that is, beneath the minimum lot size).

**4. Zoning and subdivision regulations are making it more difficult to develop in NR districts.**

It is extremely difficult to know with certainty whether zoning and subdivision regulations are resulting in less subdivision in NR districts. Part of the trouble lies with not having a way to track the number of subdivision proposals that might have been advanced by landowners had they not been dissuaded by existing regulations. (A simplified example of this would be a landowner who would like to subdivide a 50 acre parcel into 10 five acre lots, but does not seek a permit because the town's zoning regulations clearly indicate a 25 acre minimum

lot size in the district.) A future study may be able to track the degree to which regulations influence development in NR districts, but this will require collecting more information than just subdivision decisions.

## **Conclusions**

Natural Resource districts appear to be effective in limiting development. This is probably due to multiple factors including the fact that these districts often include steep slopes, conserved land, large minimum lot sizes, and bylaw standards that prioritize resource protection. The existence of a natural resource type district alone does not guarantee conservation; however, they can provide an elevated level of protection for a community's natural resources and should be considered an important and worthwhile tool.

## F. Rural Residential Districts

### Phase II: Rural Residential District Typology

In the Phase II study, VNRC sought to further define what characteristics are typically associated with “Rural Residential” (RR) type districts and then quantify the subdivision activity that was taking place there. To do this, VNRC scrutinized RR type districts, or those that generally shared the following characteristics during the study period (2002-2010):

- *Low to medium density residential development with minimum lot sizes almost always between one and six acres.*<sup>13</sup>
- *The primary purpose of the district is to facilitate housing in rural areas; however, it should be noted that purpose statements will often include an acknowledgement of the working lands and support for agriculture and forestry.*<sup>14</sup>
- *Single-family residences are always permitted.*<sup>15</sup>
- *Two-family residences are always permitted or a conditional use.*
- *Multi-family residences are sometimes allowed as a conditional use.*
- *Agricultural uses are always permitted; forestry is usually permitted.*<sup>16</sup>

<sup>13</sup> Please note two exceptions: Jericho’s “Agricultural District” at 10 acres and Bolton’s “Rural II District” at 10 acres after zoning changes in 2005.

<sup>14</sup> Nineteen zoning districts from the 14 phase II towns conformed to the “Rural Residential Districts” type. It was observed that 12 of the 19 districts’ purpose statements mentioned the importance of working lands (five mentioned only agriculture, one mentioned only forestry, and the remaining six districts mentioned both agriculture and forestry). While this observation provides insight into the intended purpose of this district type, it should not be misconstrued as evidence that these districts actually provide conditions that support working lands endeavors.

<sup>15</sup> Please note one exception: In Morristown’s “Rural Residential with Agriculture and Special Industry District,” single-family residences are conditional uses.

### Phase II: Qualifying RR Districts

Based on the Rural Residential (RR) District typology described above, the authors found a total of 20 RR districts in the 14 Phase II towns.

Subdivision activity took place within RR districts in all 14 towns during the study period (see Figure 10).

| Town  | RR Districts   |
|---|--|
| Bolton  | Rural I District, Rural II District  |
| Brandon   | Low Density Multi-Use District (LDMU) (2002-2006 only), Rural Development District (est. 2006, old Conservation and LDMU Districts incorporated)                 |
| Dorset  | Agriculture and Rural Residence District   |
| Fayston   | Rural Residential District, Recreation District*   |
| Hardwick  | Rural Residential District   |
| Huntington  | Rural Residential District   |
| Jericho   | Rural Residential District   |
| Marlboro  | Rural Residential District   |
| Monkton   | Rural Agricultural 2 District, Rural Agricultural 5 District   |
| Morristown  | Rural Residential with Agriculture District, Rural Residential with Agriculture and Special Industry District  |
| Morristown  | Agricultural/Residential District  |
| Shrewsbury  | Rural Residential District   |
| Tinmouth  | Rural Residential District   |
| West Windsor                                      | Resort/Conservation Planned Unit Development (PUD) District (est. 2008)*, Rural Residential 5/4 District (name changed to “Rural Residential District” in 2010). |
| * = Difficult to categorize as NR or RR District. |  |

Figure 10

<sup>16</sup> Municipalities do not have the authority to regulate accepted agricultural and silvicultural practices (24 V.S.A. §4413(d) lists limitations on municipal bylaws); many towns, including some of the case study communities, nonetheless list agriculture and forestry in their zoning as “permitted” uses, so we have included it here as a “common characteristic” of RR districts.

## **Phase II: District Size**

In the phase II towns, the total acreage within RR type districts was often, but not always, higher than the total acreage in NR type districts. (Please see “District Size” on p. 17 for further explanation.)

## **Phase I and II: Findings**

In both the Phase I and II studies, VNRC found that **the vast majority of subdivisions occurred in rural residential zoning districts.**

In the Phase I study, subdivisions were concentrated in rural “default” districts – areas largely characterized by a mix of agricultural, forest and low-to-moderate density residential land uses.

In the Phase II towns, VNRC found that **79% of all subdivisions and 84% of the total acres subdivided were located either partially or fully within a RR type district.**

## **Conclusions**

Since the majority of subdivisions are occurring in Rural Residential type districts, natural resource features, such as intact wildlife habitat blocks, are more vulnerable to impacts from development if towns do not have adequate resource protection standards in these districts.

## II. General Recommendations

### ***1. The Legislature should strengthen Act 250 to play a more meaningful role in reviewing the impacts of development on forestland.***

This study suggests that the overwhelming majority of subdivision development does not trigger Act 250 review. In general, subdivisions are not creating enough lots to trigger jurisdiction, and legislative loopholes have exacerbated the lack of oversight by reducing the ability of Act 250 to review development that fragments forestland. For example, roads over 800 feet in length no longer trigger Act 250 review, and the Vermont Legislature exempted the review of the secondary impacts associated with the construction of utility lines from Act 250. Another issue is that even when a project does trigger review, Act 250 does not address, or mitigate, the impacts of forest fragmentation.

Policy options include changing Act 250 jurisdiction to include the review of (1) a lower number of subdivided lots, (2) long roads, or (3) development that is located a certain distance from existing roads that extend into intact forestland. Furthermore, jurisdiction could be expanded to review the secondary impacts of utility lines that penetrate intact forest blocks. Finally, Act 250 criteria should be strengthened to evaluate and mitigate the fragmenting effects of development on forestland.

### ***2. Municipalities that do not have subdivision regulations should adopt them in order to minimize the fragmenting impacts of subdivision on forestland.***

This study suggests that a large percentage of land subdivision does not trigger state level review through Act 250. Because of this, zoning bylaw and subdivision review standards that

address the effects of parcelization on forestland are needed at the municipal level.

### ***3. Municipalities that have zoning and subdivision regulations should review and strengthen natural resources protections within their Rural Residential type districts.***

This study suggests that the majority of subdivision activity is occurring in Rural Residential type districts. Given that wildlife habitat blocks and other important natural resources are often located within these districts as well as others, zoning bylaws and subdivision regulations should include standards that minimize forest and habitat fragmentation through site design that is sensitive to the context – i.e., sites roads with buildings and the parcel’s natural resources in mind.

### ***4. Municipalities that already have zoning and subdivision regulations are encouraged to take the following steps to ensure that these regulations discourage parcelization:***

- Greater use of Forest and other Natural Resource Districts in local zoning;
- Conservation subdivision design, which includes designing the location of development around the site’s natural resources, as well as clustering provisions (either mandatory or encouraged through meaningful incentives);
- Fixed-area based zoning or comparable provisions that foster the creation of small building lots and low overall development densities in designated zoning districts;
- Large lot zoning (with minimum lot size being based on viable forest management rather than residential development), combined with careful site design (i.e., limiting road lengths, following existing topographic features, designating building envelopes) to avoid natural resources;

- Additional town plan policies and bylaw standards that will minimize the impact of subdivisions on forest management and ecological functions. Please refer to *Community Strategies for Vermont's Forests and Wildlife: A Guide for Local Action* for ideas at: <http://vnrc.org/programs/forests-wildlife/guide/>.

***5. The municipal subdivision process should encourage the retention of large lot sizes and, through site design, the continued viability of these lots.***

When subdivided, parcels in the 50-100 acre range have a higher likelihood than those in the 100+ acre range of being fragmented to the point where the resulting parcels are no longer large enough to support forest management and the maintenance of ecological functions. It is crucial that large lot sizes are maintained. Just as important, however, is how development on these lots occurs, even when large size is maintained. Development envelopes should be used to site housing, driveways, and other structures near existing roads and an adequate distance away from important natural resources and wildlife corridors.

***6. The Current Use Program must be given additional administrative support in order to keep pace with new forestland enrollment that results from subdivision.***

If subdivision trends continue across the state at the same level as the case studies in this report, a greater number of lots will become eligible for enrollment in the Current Use Program. As long as those parcels stay above 25 acres, the Current Use Program will see the continued enrollment of smaller parcels of land, potentially leading to a higher administrative burden on the Program. Since subdivision is part of the reason the Current Use Program is experiencing increased enrollment in the forestland category, the Vermont Legislature should consider increasing the penalty for

withdrawing and developing land that is enrolled in the Program as a way to offset the costs of growing enrollment.

***7. Provide adequate funding for the Vermont Housing and Conservation Board (VHCB) and the Working Lands Enterprise Initiative.***

The Vermont Legislature recently emphasized the importance of conserving forestland in Vermont; however, funds are limited for projects in the forestland category. The Vermont Legislature should ensure that VHCB is fully funded with adequate annual revenue to achieve successful forest conservation projects. Other initiatives, such as the Working Lands Enterprise, should continue to receive support to maintain viable working forests in Vermont



### III. Remaining Questions and Future Research

Future research on subdivision trends in Vermont should explore the following questions:

#### ***How do subdivision trends compare in Vermont towns that have both zoning and subdivision regulations and those that do not?***

The Phase I and II studies examined subdivision trends in towns that have both permanent zoning and subdivision regulations. Given that 49% of Vermont's towns do not have subdivision regulations, it remains unclear whether the findings from the Phase I and II analyses would be similar in these other communities.<sup>17</sup> For instance, in towns without permanent zoning and subdivision regulations:

- *How many lots resulted from the average subdivision?*
- *What was the median lot size in each town? Similarly, between towns?*
- *How many subdivisions triggered review under Act 250? And how many were due to original jurisdiction or amendment jurisdiction?*

#### ***Where are new buildings, driveways, and roads being sited on subdivided parcels?***

While local subdivision decisions provide evidence of parcelization, they do not demonstrate fragmentation, which takes place after the fact, once new buildings, driveways, roads, and other infrastructure are constructed. As E911 GIS coordinates become more accurate

indicators of actual building location, this data could be used to determine the degree to which individual subdivisions are actually fragmenting forested areas. Likewise, wastewater treatment permits and other data might be used in a future analysis.

#### ***How do bylaw standards and subdivision regulations shape the design of subdivisions?***

It is difficult to track the degree to which regulations shape the design of subdivisions. This is especially true since many zoning permits and subdivision review decisions do not explain the process of shaping subdivisions to address natural resource features, unless there are conditions in the permit related to resource protection. A future study could survey zoning administrators and planning commission/development review board chairs to collect additional information about the role and effectiveness of regulations in shaping subdivision design.

#### ***Who influences subdivision design and layout?***

It is important to understand who is responsible for influencing subdivision design and lot layout. For example, do engineers and site technicians drive subdivision design based on landowner input, or other factors such as proximity to existing utilities or septic capacity? Do real estate agents or lending institutions influence subdivision decisions? What about landowners? What resources do they have to make proactive decisions about subdivision design and forest resources? A future study could examine these questions to target future outreach efforts.

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<sup>17</sup> *Wildlife Considerations in Local Planning: An Evaluation of a Decade of Progress in Vermont*. Prepared by the Vermont Natural Resources Council. Feb. 2011. P. 8. Website: <http://vnrc.org/wp-content/uploads/2012/08/Wildlife-Considerations-in-Local-Planning1.pdf>.

## IV. Methodology

**For this Phase II Report, VNRC reviewed the town records for subdivisions that took place between 2002 and 2010 in 14 Phase II towns:**

Bolton, Brandon, Dorset, Fayston, Hardwick, Huntington, Jericho, Marlboro, Monkton, Morrystown, Richmond, Shrewsbury, Tinmouth and West Windsor.

**The following information was collected for each subdivision:** *year, zoning district, name, parcel number, location, total acreage, number of lots created, the acreage of each resulting lot, natural resources related findings or conditions mentioned in the decision, and relationship (if any) to Act 250.*

**VNRC staff also compiled all available zoning and subdivision regulations, and corresponding zoning district maps, that were in effect between 2002 and 2010 in each Phase II town.**

Regulations and maps were procured from town websites, town offices, and zoning administrators (ZAs) or other appropriate town officials. VNRC staff confirmed (by e-mail or phone) with ZAs to ensure that they had copies of all regulations and maps in effect during the study period. In some instances, copies of regulations or maps could not be procured. In these instances, VNRC confirmed with the ZA that no significant changes to the zoning districts were enacted through the missing regulations. These instances are footnoted in the case studies.

**VNRC conducted an in-depth assessment of “Natural Resources” (NR) and “Rural Residential” (RR) zoning districts.** To conduct this analysis VNRC developed a typology based on district purposes, characteristics and dimensional, density and use standards, rather than district name only (since similar names do not necessarily correlate with similar purposes, standards and functions across towns). (Please

see p. 16 for the characteristics of a NR district and p. 21 for those of a RR district.) The typology was based on common characteristics that were exhibited in zoning districts within the 14 Phase II towns.

The following information was collected for every rural district that involved housing and/or natural resources in some capacity: *town, district name, stated purpose of district, minimum lot size, minimum area per unit, minimum frontage, maximum building coverage, maximum lot coverage, uses (forestry, agriculture, campground, camp, single-family residence, two-family residence, multi-family residence, extraction and quarrying, school, wood processing operation (not a sawmill)).* This information was found in the zoning regulations that were in effect between 2002 and 2010 for each Phase II town.

Districts that did not explicitly address natural resources or housing in rural areas, and did not share the bulk of characteristics associated with the NR and RR categories, were not analyzed further. Examples of such districts include the village and flood hazard area districts.<sup>18</sup> (Please note, however, that subdivision activity was recorded for all districts in each town, regardless of whether those districts fell into the NR or RR categories.)

For those districts in the NR or RR categories, VNRC compiled additional information from the town’s records:

- *The total number of subdivisions in this district;*

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<sup>18</sup> While flood hazard districts can have a beneficial impact on natural resources (such as aquatic wildlife and water quality), the main purpose of these districts is to protect life and property per the requirements of the Federal Emergency Management Agency.

- *The number of subdivisions in this district as a percentage of the total subdivisions in the town;*
- *The average resulting lot size (acres) of subdivisions in this district;*
- *The average resulting lot size (acres) of subdivisions in the town;*
- *The average number of new lots created through subdivision in this district;*
- *The average number of lots created through subdivision in the town.*
- *The total number of parent parcels in the NR or RR category;*
- *The total number of resulting parcels (after subdivision) in the NR or RR category;*
- *The total number of acres in the NR or RR category;*
- *The total number and percent of parcels eligible for the UVA Program prior to subdivision;*
- *The total number and percent of parcels eligible for the UVA Program after subdivision;*
- *The total acreage and percent of acreage eligible for the UVA Program before subdivision;*
- *The total acreage and percent of acreage eligible for the UVA Program after subdivision.*

**The approximate percentage of a town’s total land in each district that fell under the categories of NR or RR was estimated.** These estimates were based on the best available information – often a visual assessment of zoning district maps that were in effect during the study period. As you review the findings in this report, please remember that the district sizes are approximations.

**The actual percentage of a town’s total land in each district was calculated using GIS mapping software and zoning district data layers for four towns.** The towns included: Fayston, Morristown, Richmond, and West Windsor. Calculations were made by Pam Brangan, the GIS Senior Planner at Chittenden County Regional Planning Commission (CCRPC).

**The number of parcels and the total acreage eligible for the UVA Program was calculated for all zoning districts in the NR or RR categories for each town.** Please note that “eligible” does not mean that a lot was actually enrolled in the UVA Program before or after subdivision; rather, “eligible” means that the parcel was 25 acres or larger in size.<sup>19</sup> The following information was recorded:

**Parent parcels in all districts (regardless of whether they fit into the NR or RR categories) in each Phase II town were placed (when applicable) into categories of 50-100 acres or 100+ acres.** The resulting lots (also called “child lots”), in each category, were then analyzed to see whether at least one child lot of 50 acres or larger was retained. This assessment sought to quantify the impacts of subdivision on the viability of resulting lots for forestry and wildlife management.

The resulting lots, in each category, were also analyzed to see whether at least one child lot of 25 acres or more was retained. This assessment quantified the impact of subdivision on

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<sup>19</sup> In the Current Use Program, a parcel without a residence must be at least 25 acres or larger, while a parcel with a residence must be at least 27 acres or larger. Although local subdivision records will sometimes include

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a note on whether the landowner intends to build a residence, these records do not confirm whether construction actually occurs, nor should they be considered comprehensive. Accordingly, VNRC assessed parcel eligibility for the UVA Program on the basis of the lower acreage threshold (25 acres).

eligibility for the Current Use Program (see footnote 19 for more information on how “eligibility” was defined).

**A spatial analysis using Arc GIS and digital parcel maps was performed** by Pam Brangan, of CCRPC, for the following towns: Fayston, Morristown, Richmond, and West Windsor. Due to funding limitations, maps could not be produced for all 14 of the Phase II towns. The towns that were mapped were chosen to reflect a diversity of zoning districts, number of subdivisions during the study period (2002-2010), location in Vermont, presence of conserved lands, and population size.

Please note that in some instances, subdivisions could not be mapped because the proper coordinates (location) could not be determined. Additionally, in some instances, the same land was sometimes subdivided multiple times over the course of the study period, resulting in fewer mapped subdivision polygons than the actual number of subdivisions in a given town.

The following data was used to produce these maps:

### **Zoning Map**

Subdivisions - 2013 developed by CCRPC from data provided by VNRC; Zoning - 2008 TerraMap; Parcels - 2012 TerraMap; Conserved Land - Vermont Land Trust (VLT) 2013; Habitat Blocks - VT Agency of Natural Resources (ANR) 2011; Act 250 Permits – VNRC (VT ANR Act 250 Permit Database); Road Centerline and Road Names - Enhanced 911 data - 7/2013; Surface Water - NHD downloaded from Vermont Center for Geographic Information (VCGI) – 2003; Data in State Plane Coordinate System, NAD 83 meters.

### **Habitat Map**

Subdivisions - 2013 developed by CCRPC from data provided by VNRC; Conserved Land – VLT 2013; Habitat Blocks - VT ANR 2011; Act 250

Permits – VNRC (VT ANR Act 250 Permit Database); Road Centerline and Road Names - Enhanced 911 data - 7/2013; Surface Water - NHD downloaded from VCGI – 2003; Data in State Plane Coordinate System, NAD 83 meters.

### **Slope Map**

Subdivisions - 2013 developed by CCRPC from data provided by VNRC; Conserved Land - VLT 2013; Elevation - generated from 10 m NED DEM 2012; Steep Slope - derived from USGS 2012 data; Road Centerline and Road Names - Enhanced 911 data - 7/2013; Surface Water - NHD downloaded from VCGI – 2003; Data in State Plane Coordinate System, NAD 83 meters.

### **Map Disclaimer**

The accuracy of information presented is determined by its sources. Errors and omissions may exist. The CCRPC is not responsible for these. Questions of on-the-ground location can be resolved by site inspections and/or surveys by a registered surveyor. These maps are not sufficient for delineation of features on-the-ground. These maps identify the presence of features, and may indicate relationships between features, but they are not a replacement for surveyed information or engineering studies.

Pam Brangan used the mapping data to answer the following questions for each mapped town:

1. *In which zoning districts are the subdivisions concentrated?*
2. *To what extent do natural resource (NR) type districts overlap with wildlife habitat blocks?*
3. *To what extent is subdivision taking place within wildlife habitat blocks?*
4. *To what extent are lands in the NR type districts already conserved by the state*

*and federal government and through local land trusts?*

5. *What percent of land in each zoning district is conserved?*
6. *What percent of land in each zoning district has a 25% or higher slope?*
7. *How many subdivisions encroached upon the core area of the wildlife habitat blocks?*
8. *What percent of the core area of the wildlife habitat blocks was encroached upon by those subdivisions?*

## V. References

For each of the Phase II towns, the following resources were used to collect data:

- **The Informing Land Use Planning and Forestland Conservation Through Subdivision and Parcelization Trend Information website**, a project of VNRC and Vermont Family Forests, was used to determine the conserved acreage in each case study town. The data on this website was compiled in conjunction with the Phase I report, which was published in Sept. 2010. Website:  
[http://www.vnrc.org/subdivisionreport/.](http://www.vnrc.org/subdivisionreport/)
- **The Natural Resources Board** was consulted on questions regarding Act 250 permits in the 14 case study towns.
- **The U.S. Census Bureau** was used to collect population, household, and housing unit data for the years 2000 and 2010. Website:  
[www.census.gov](http://www.census.gov).
- **The Vermont Agency of Natural Resources' Act 250 Permit Database** was used to determine which of the subdivisions in town records were also subject to Act 250 review and why (the basis for jurisdiction). Website:  
<http://www.anr.state.vt.us/site/cfm/act250/index.cfm>.
- **Vermont Indicators Online** was used to determine the acreage of each town. Please note that sometimes this number conflicted slightly with the number reported in a town's Municipal Plan. Website:  
[http://www.uvm.edu/crs/indicators\\_2010/.](http://www.uvm.edu/crs/indicators_2010/)

Please see the *IV. Methodology* section of this report (p. 26) for the list of resources that were used to develop maps of Fayston, Morristown, Richmond, and West Windsor.

## VI. Case Studies and Maps

### I. Bolton

The town of Bolton, the “Land of Boulders and Bears,” is located in Chittenden County and is home to the Bolton Valley Ski Area. Bolton is comprised of 26,752 acres, including 2,251 acres conserved by the U.S. government, 404 acres conserved by the municipal government, and 10,940 acres conserved by the state of Vermont, and 901 acres conserved by non-profit organizations.



**Figure 10: Preston Pond in Bolton, VT.**  
Photo Credit: Stephen Barner. Town of Bolton, VT Website:  
<http://www.boltonvt.com/cc/index.html>.

Bolton’s population grew by more than 25% from 1980 to 1990; however, population growth stagnated in the 1990s before growing again, this time by 21.7% between 2000 and 2010 (from 971 to 1,182 residents). The number of households increased by 32.3% (from 368 in 2000 to 487 in 2010) and the number of housing units increased by 46.1% during the same period (from 412 to 602).

At the start of the study period (2002), Bolton was divided into five zoning districts and one Agricultural Overlay district. These districts and their respective minimum lot sizes included: Village I (1 acre), Village II (2/3 of an acre), Agricultural and Rural I (2 acres), Rural II (6 acres), and Conservation (not applicable).<sup>20</sup>

In 2005, the Town of Bolton amended its Land Use & Development Regulations to include a total of seven districts. The Conservation District expanded into the old Rural II District. A Forest District was also added in what used to be the Rural II District. Both the Forest and Conservation Districts were assigned 25-acre minimum lot sizes. Some of the Rural II District survived, but beginning in 2005, it covered a much smaller area, and the minimum lot size went from six to 10 acres. The Village I District remained in the same location and with the same minimum lot size – it was renamed the “Village District.” The Agricultural and Rural I District became the “Rural I District” with a new minimum lot size of 2 acres. Finally, the Village II District was split into two: the Resort Village (0.5 acre minimum lot size) and the Resort Residential District (2 acre minimum lot size). Additionally, a Flood Hazard Overlay was created. It’s important to note that the majority of land (approximately 60-65%) in Bolton is located within the Forest and Conservation Districts.<sup>21</sup>

Between 2002 and 2010, the Town of Bolton approved 14 subdivisions involving 13,613 acres and resulting in the creation of 50 lots (36 new lots in addition to the 14 pre-subdivision parcels). The average number of lots created per subdivision was 3.6. The average lot size of the 14 pre-subdivision parcels was 907 acres. After subdivision, the average lot size of the resulting 50 parcels was 272 acres. The median lot size pre-subdivision was 45 acres and post-subdivision was 12 acres.<sup>22</sup>

Subdivision occurred in the following districts: Village II, Agricultural & Rural I, and Rural II prior to 2005, and Rural I, Rural II, Forest, and Resort Residential after 2005. Most subdivisions occurred in the rural districts, while only one subdivision occurred in the Forest District. No subdivisions were denied during the study period. Bolton was home to six of the eight subdivisions that involved parent parcels of 500 acres or more and that were subject to Act 250 review.

<sup>20</sup> Please note that a minimum lot size is “not applicable” in the Conservation District because no development is allowed here. Permitted uses are restricted to: forestry, agriculture, and woodlots, outdoor recreational uses, and wildlife management or refuge areas. Bolton Zoning Ordinance. Revised May 1992. P. 8.

<sup>21</sup> This is an estimate based on a visual assessment by VNRC staff of zoning maps in effect during the study period. For more information, please see *IV. Methodology* (p. 26).

<sup>22</sup> Please note that several very large parcels underwent subdivision during this period. Accordingly, the average may not be as useful as the median.

## II. Brandon

The town of Brandon is located in Rutland County and includes the villages of Brandon and Forest Dale. Brandon covers 25,683 acres (41 square miles), and is bisected by U.S. Route 7. The town includes the following conserved acreage: 105 acres by the U.S. government, 195 acres by the state of Vermont, 301 acres by the municipal government, and 1,584 acres by non-profit organizations.

Brandon is presently the fourth largest town in Rutland County. Although Brandon's population grew from 3,697 in 1970 to 4,223 in 1990, it began to decline steadily from 1990 to 2000. Between 2000 and 2010, the population increased by 1.3% (from 3,917 to 3,966 residents). During this same period, the number of households increased by 7.1% (from 1,572 to 1,684), while the number of housing units grew by 8.4% (from 1,710 to 1,854).

At the start of the study period, Brandon was divided into 11 zoning districts. These districts and their minimum lot sizes include: Aquifers (0.5 – 5 acres), Central Business (0.25 acre – NP), Conservation (2 – 5 acres), Economic Development Zone (1 – 2 acres), Floodways (5 – 10 acres), High Density Multi-Use (0.25 – 2 acres), Highway Commercial (1 – 2 acres), Industrial (1 – 2 acres), Low Density Multi-Use (2 – 2 acres), Medium Density Multi-Use (1 – 2 acres), and Neighborhood Residential (0.25 – 2 acres).<sup>23</sup>

In 2006, the Town of Brandon adopted new land use regulations, this time dividing the town into five zoning districts. The zoning districts and their minimum lot sizes include: Aquifer (0.5 – 2 acres), Central Business (1,000 ft<sup>2</sup> - NP), High Density Multi-Use (0.25 – 2 acres), Neighborhood Residential (0.25 – 2 acres), and the Rural Development District (2 acres).<sup>24</sup> It's important to note that the vast majority of land in Brandon is located in what used to be the Conservation and Low Density Multi-Use Districts (pre-2006), which later became the Rural Development District (post-2006).

Between 2002 and 2009, the Town of Brandon approved 61 subdivisions involving 3,438 acres and resulting in the creation of 149 lots (88 new lots in addition to the 61 pre-subdivision parcels). The average number of lots created per subdivision was 2.4. The average lot size of the 61 pre-subdivision parcels was 56.4 acres. After subdivision, the average lot size of the resulting 149 parcels was 23 acres. The median lot size pre-subdivision was 18.5 acres and post-subdivision was 5.6 acres.

The majority of subdivisions occurred either fully or partially within the Rural Development District. Specifically, 26 subdivisions (about 48% of all subdivisions that occurred during the study period) took place fully in this District, resulting in the creation of 66 lots, and four more subdivisions took place partially in this District, resulting in 10 lots. Many subdivisions also took place in either the Conservation or Low Density Multi-Use Districts (LDMU), which became the Rural Development District in 2006. Six subdivisions took place fully in the Conservation or LDMU Districts (resulting in 15 lots), and 10 subdivisions took place partially in these Districts (resulting in 25 lots).

Three subdivisions were denied during the study period. There was no tally of the number of applications that may have been submitted and then withdrawn.



**Figure 11: Brandon Town Hall.** Photo Credit: Dennis Marden. Town of Brandon, VT Website: <http://townofbrandon.com/>.

<sup>23</sup> The acreage range indicates the difference in minimum lot sizes for a primary structure with access to public sewer versus those with access to private wastewater disposal. "NP" stands for "Not Permitted." The regulations also contain minimum acreage standards per dwelling unit for each district, which are not listed in this report. Brandon Land Use Ordinance, 1983.

<sup>24</sup> See footnote 23 for description of acreage ranges and "NP."



### III. Dorset

Dorset is located at the northern border of Bennington County within the Green Mountain National Forest (GMNF) and within the Taconic Mountain Range. The town is comprised of 30,630 acres, of which 5,385 are conserved by the U.S. government and managed as the GMNF, 74 are conserved by the municipal government, 831 are conserved by the state of Vermont, and 2,405 are conserved by non-profit organizations.



Figure 12. Town of Dorset, VT Website: <http://www.dorsetvt.org/>.

According to the 2009 Dorset Town Plan, 14,228 acres (or a little less than half of the town's total land area) contain slopes in excess of 20% and 2,880 acres (or about 9% of the town's total land area) have elevations above 2,500 feet. Between 2000 and 2010, the population of Dorset decreased by just a few residents (from 2,036 to 2,031 residents or -0.2%). During this same time period, however, the total number of housing units increased by 16.4% (from 1,246 in 2000 to 1,450 units in 2010), and the total number of households increased by 4.9% (from 856 to 898). The divergent trends in population and housing units could be due to the second home market in Dorset.

According to the 2005 zoning bylaws, Dorset was divided into a total of seven zoning districts throughout the study period: Forest I, Forest II, Public Water (Aquifer) Protection, Agriculture & Rural Residence, Village Residence, Planned Commercial-Industrial, and Village Commercial. Additionally, Dorset had three overlays: the Flood Hazard and Design Areas, as well as the Ridgeline and Mountainside Conservation Overlay Zone.<sup>25</sup>

Between 2002 and 2010, the Town of Dorset approved 22 subdivisions involving 1,688 acres and resulting in the creation of 68 lots (46 new lots in addition to the 22 parent parcels). The average number of lots created per subdivision was 3.1. The average lot size of the 22 pre-subdivision parcels was 76.7 acres. After subdivision, the average lot size of the resulting 68 parcels was 24.8 acres. The median lot size pre-subdivision was 24.8 acres and post-subdivision was 10.5 acres.

Subdivision occurred in all zoning districts except for the Public Water (Aquifer) Protection District. Eleven subdivisions (resulting in the creation of 36 lots) took place fully in the Agriculture & Rural Residence District and an additional five subdivisions (resulting in 16 lots) took place partially in this District. Four of the five subdivisions that took place partially in the Agriculture & Rural Residence District were also partially located in either the Forest I or Forest II Districts.<sup>26</sup>

One subdivision application was denied during the study period due to concerns regarding the proposed development and emergency access – both were proposed for 20% or greater slopes (upon which development is prohibited).<sup>27</sup> There is no tally of the number of applications that might have been submitted and then withdrawn.

<sup>25</sup> No significant changes took place when Dorset's 1996 zoning bylaws were revised in 2005 and then again in 2010. This analysis was confirmed by Dorset's Zoning Administrator (e-mail July 23, 2013). Additionally, the 2002 subdivision regulations remained in effect through the end of the study period (2010).

<sup>26</sup> These four mentioned are the only subdivisions that took place in either the Forest I or Forest II Districts throughout the study period (2002-2010).

<sup>27</sup> Town of Dorset Zoning Bylaw. Approved Nov. 15, 2005. P. 6.

## IV. Fayston

Fayston is a rural community in Vermont's Mad River Valley and is home to Mount Ellen (Sugarbush) and Mad River Glen ski areas. It is located in the southwest corner of Washington County, on the eastern slope of the Green Mountain Range. Fayston – which has the highest average elevation of any town in Vermont - is comprised of 23,560 acres of land, of which 33 are conserved by the U.S. government, 3,218 are conserved by the state of Vermont, and 1,971 are conserved by non-profit organizations. The state-conserved lands are primarily managed as Camel's Hump State Park and Forest.



Figure 13. Town of Fayston, VT Website: <http://www.faystonvt.com/>.

Between 2000 and 2010, the population of Fayston grew by 18.6% (from 1,141 to 1,353 residents). During this same decade, the total number of housing units increased by 33.4% (from 900 to 1,201), while the total number of households increased by 22.7% (from 484 to 594).

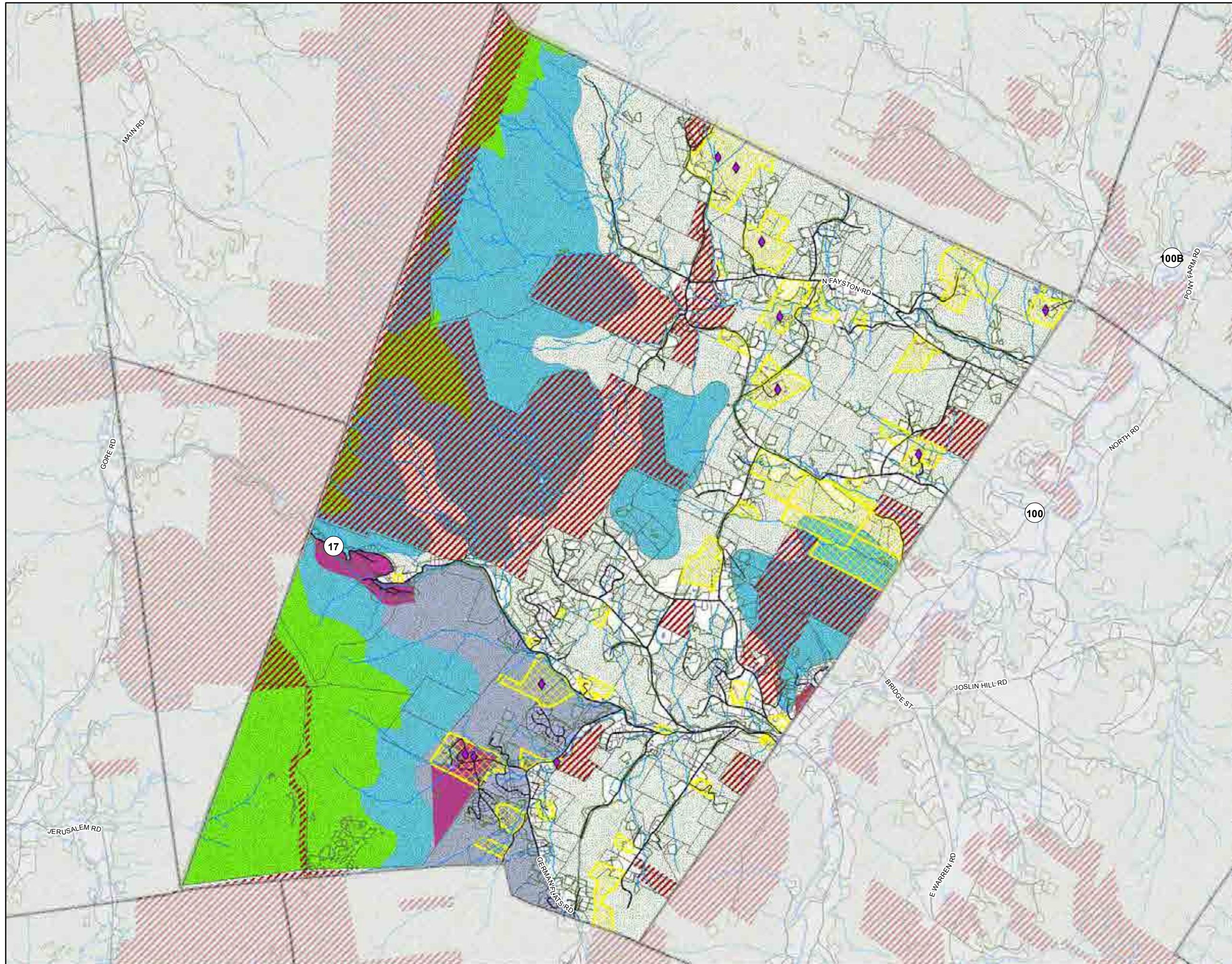
Fayston is divided into seven zoning districts. The zoning districts and their respective minimum lot sizes include: Industrial (10,000 ft<sup>2</sup>), Irasville Commercial (1 acre), Recreation (1 acre), Resort Development (0.5 acre), Rural Residential (1 acre), Soil and Water Conservation (5 acres), and Forest (25 acres). Fayston also has a Flood Hazard Overlay. In general, the Industrial and Irasville Commercial Districts are adjacent to an existing industrial park and the Irasville village area, respectively, both of which are in neighboring Waitsfield, while the Recreation and Resort Development Districts cover most of the ski resort area.

Between 2002 and 2010, the Town of Fayston approved 49 subdivisions involving 2,935 acres, which resulted in the creation of 143 lots (94 new lots in addition to the 49 pre-subdivision or "parent" parcels). The average number of lots created per subdivision was 2.9. The average lot size of the 49 pre-subdivision parcels was 59.9 acres. After subdivision, the average lot size of the resulting 143 parcels was 20.52 acres. The median lot size pre-subdivision was 21.45 and post-subdivision was 5.9 acres.












Subdivision occurred in only three zoning districts: Rural Residential, Recreation, and Soil and Water Conservation. The majority transpired in the Rural Residential District: 43 subdivisions (which resulted in 119 lots) took place fully within this District, while one additional subdivision (which resulted in seven lots) took place partially there. Additionally, five subdivisions took place fully within the Recreation District, resulting in the creation of 17 lots. One subdivision took place partially within the Soil and Water Conservation District, and no subdivisions occurred in the Forest District.

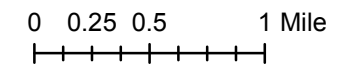
Throughout the study period, four subdivisions were denied, two of which were later approved after appealing the decisions to the Vermont Environmental Court. One of the subdivisions (48.9 acres in the Rural Residential District) was denied (and was not later approved by the Court) because of the potential to fragment existing wildlife habitat in violation of the Town Plan and zoning ordinances. There was no tally of the number of applications that may have been submitted and then withdrawn.

# Map 1 Zoning Fayston, Vermont



## Legend

-  Act 250 Permit
  -  Subdivision
  -  2009 Tax Parcel Boundary
  -  Conserved Land
  -  Habitat Block
- Zoning District**
-  Rural Residential
  -  Commercial Recreational
  -  Recreation
  -  Forest
  -  Irasville Commercial
  -  Soil & Water conservation









**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Zoning - 2004  
 Parcels - 2009  
 Conserved Land - VLT 2012/2013  
 Habitat Blocks - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - E911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS.  
 Data in State Plane Coordinate System, NAD 83 meters.

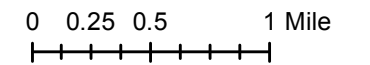
**Disclaimer**  
 The accuracy of information presented is determined by its sources. Errors and omissions may exist. The Chittenden County Regional Planning Commission is not responsible for these. Questions of on-the-ground location can be resolved by site inspections and/or surveys by registered surveyor. This map is not sufficient for delineation of features on-the-ground. This map identifies the presence of features, and may indicate relationships between features, but is not a replacement for surveyed information or engineering studies.

# Map 2 Habitat Blocks Fayston, Vermont



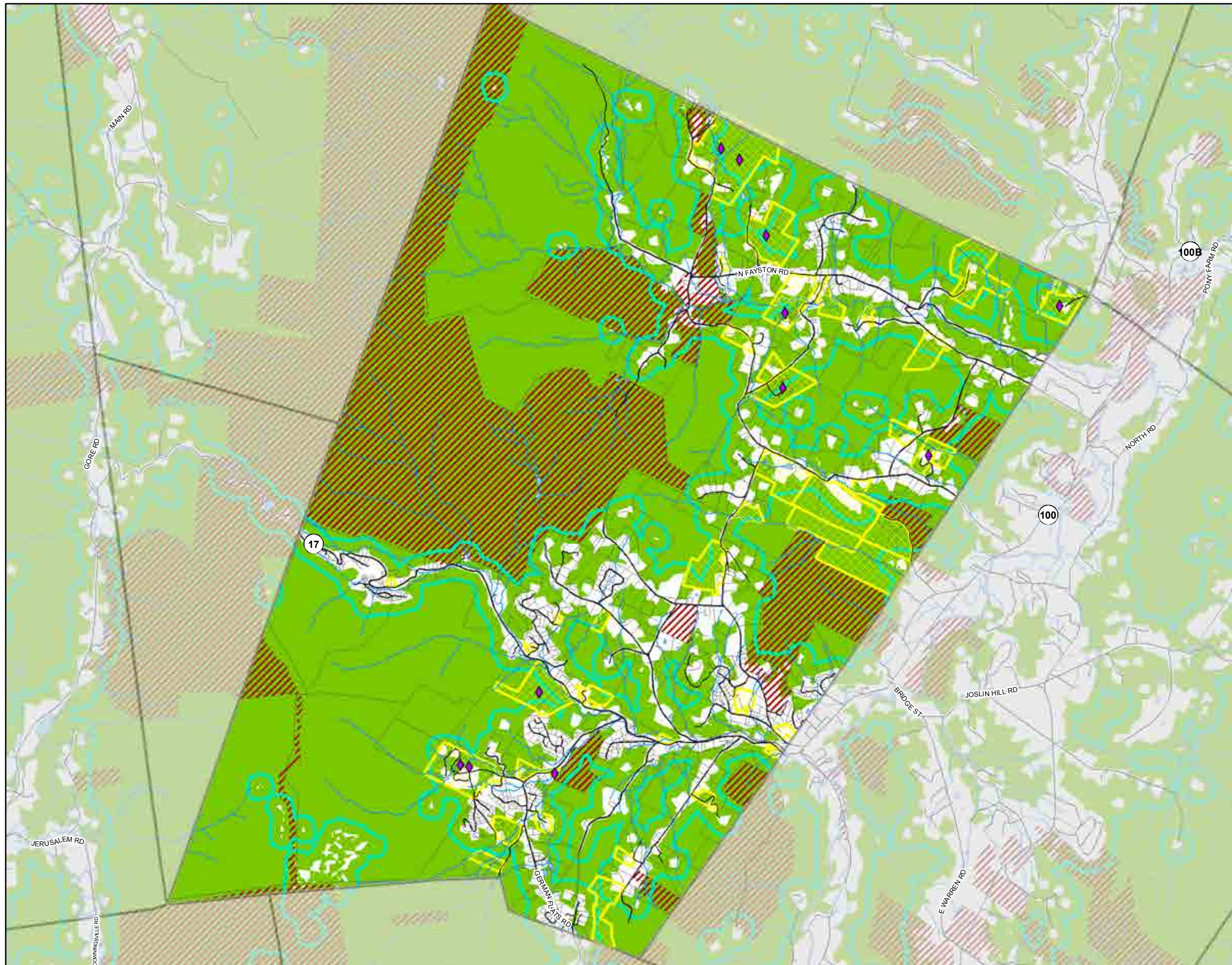
## Legend

-  Act 250 Permit
-  Subdivision
-  2009 Tax Parcel Boundary
-  Conserved Land
-  Habitat Block
-  Core Area of Habitat Block

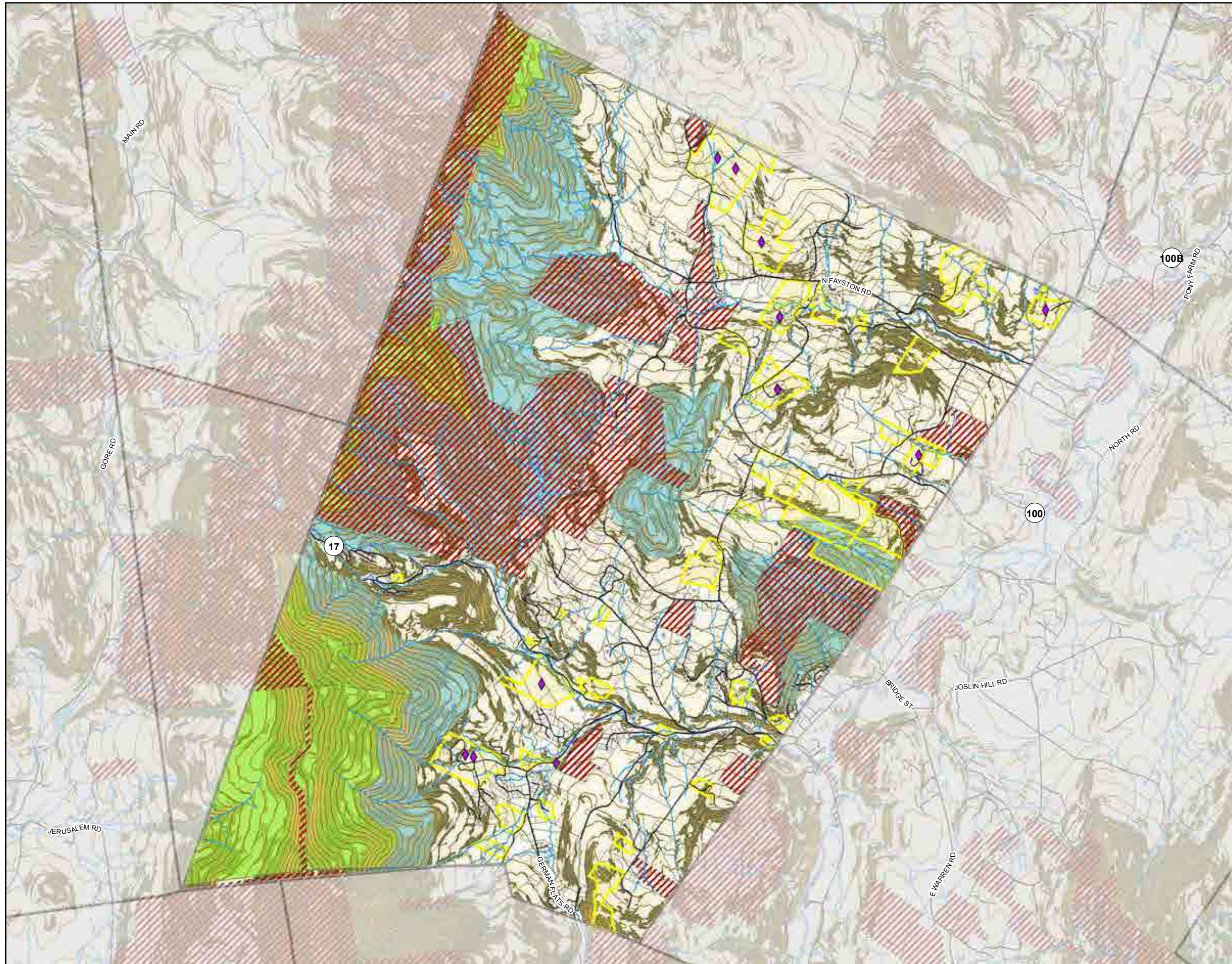


**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Parcels - 2009  
 Conserved Land - VLT 2012/2013  
 Habitat Blocks and Core Area - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - E911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS.  
 Data in State Plane Coordinate System, NAD 83 meters.

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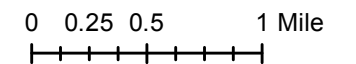


# Map 3 Steep Slope Fayston, Vermont



## Legend

-  Act 250 Permit
  -  Subdivision
  -  2009 Tax Parcel Boundary
  -  Conserved Land
  -  Slope Greater Than 25%
- Natural Resource Related Zoning District**
-  Forest
  -  Soil & Water conservation



**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Zoning - 2004  
 Parcels - 2009  
 Conserved Land - VLT 2012/2013  
 Habitat Blocks - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - E911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS.  
 Data in State Plane Coordinate System, NAD 83 meters.

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## V. Hardwick

Hardwick is located in eastern Caledonia County at the junctions of Vermont Routes 14, 15 and 16, and is often referred to as the “Gateway to the Northeast Kingdom.” The town is comprised of 24,889 acres, of which 491 are conserved by the town and managed as the Hardwick Village Forest, 152 are conserved by the state of Vermont, and 1,815 are conserved by non-profit organizations.

The population of Hardwick increased steadily between 1960 and 2000 (from 2,349 to 3,174 residents); however, between 2000 and 2010, the population declined by -5.2% (in 2010, there were only 3,010 residents). The total number of housing units followed a similar trajectory, but instead of dropping (in concert with population) between 2000 and 2010, the total number increased by 1.1% (from 1,407 in 2000 to 1,423 in 2010). During this same decade, the number of households increased by 1.9% (from 1,216 to 1,239).

Hardwick is divided into seven zoning districts.<sup>28</sup> Hardwick Village is located in the following districts with minimum lot sizes: Central Business (5,000 ft<sup>2</sup>), Village Neighborhood (7,500 ft<sup>2</sup>), Highway Mixed-Use (20,000 ft<sup>2</sup>), Industrial (20,000 ft<sup>2</sup>), and Compact Residential (10,000 – 30,000 ft<sup>2</sup>). The town also includes a Rural Residential District (3 acres), Forest Reserve District (25 acres), and Flood Hazard Area Overlay. The Rural Residential District is the largest in terms of acreage.

Between 2002 and 2010, the Town of Hardwick approved 52 subdivisions involving 3,298 acres and resulting in the creation of 122 lots (70 new lots in addition to the 52 pre-subdivision parcels). The average number of lots created per subdivision was 2.35. The average lot size of the 52 pre-subdivision parcels was 63.4 acres. After subdivision, the average lot size of the resulting 122 lots was 27 acres. The median lot size pre-subdivision was 45.5 acres and post-subdivision was 6.5 acres.

Subdivision occurred in all zoning districts except the Central Business District. Most subdivisions occurred in the Rural Residential District: 30 subdivisions (resulting in 67 lots) took place fully in this District, while one additional subdivision (resulting in two lots) took place partially in this District. Additionally, seven subdivisions (resulting in the creation of 19 lots) took place fully in the Village Neighborhood District, while five subdivisions (which resulted in the creation of ten lots) took place fully or partially in the Forest Reserve District.

During the study period, two subdivisions were denied. Additionally, one subdivision (58.4 acres in the Rural Residential District, resulting in two lots) involved the withdrawal of 8.4 acres from the Use Value Appraisal (UVA) Program. There was no tally of the number of applications that may have been submitted and then withdrawn.



Figure 14. Wikipedia:  
[http://en.wikipedia.org/wiki/Hardwick,\\_Vermont](http://en.wikipedia.org/wiki/Hardwick,_Vermont).

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<sup>28</sup> This description is based on the Hardwick Zoning and Subdivision Bylaws, Effective Oct. 30, 2003 and the Hardwick Zoning and Subdivision Bylaws (2005). The 2005 version retained the same set of districts and one overlay area with the same minimum lot sizes, and similar permitted uses. Subdivision records for the Town of Hardwick also included references to the following districts: RL1, RL2, RL2-3, and RL3. These are old district designations and have since been incorporated into the following districts: RL1 is now the Forest Reserve District, RL2 and RL2-3 are now the Rural Residential District, and RL3 is now the Village Neighborhood District. For the purposes of this report, subdivisions with these older designations are analyzed based on the new districts (from the zoning bylaw update of Oct. 2003). Information about the old districts was provided by Hardwick’s Zoning Administrator to VNRC in July 2013. A copy of the old (pre-2003) zoning bylaws was not available.

## VI. Huntington

The town of Huntington is located in the Green Mountains of Northern Vermont, in southeastern Chittenden County. It lies partially within Camel's Hump State Forest and is 86% forested. The town is comprised of 24,415 acres, of which 6,157 are conserved by the state of Vermont, 1 acre by the town, and 922 acres by non-profit organizations.

The population of Huntington has slowly increased each decade since the 1960s. Most recently, the population grew by 4.1% or from 1,861 residents in 2000 to 1,938 in 2010. Like the population, the total number of housing units in Huntington has been growing steadily since the 1960s. Most recently, the total number of housing units increased by 10.3% or from 744 in 2000 to 821 in 2010, while the total number of households increased by 8.8% or from 692 to 753 during this same period.

Huntington is divided into four zoning districts. The zoning districts and their minimum lot sizes include: Village (1 acre), Rural Residential (5 acres), Woodland (25 acres), and Conservation District (25 acres). Additionally, Huntington has a Flood Hazard Overlay.<sup>29</sup>

Between 2002 and 2010, the Town of Huntington approved 15 subdivisions involving 2,225 acres and resulting in the creation of 51 lots (36 new lots in addition to the 15 pre-subdivision parcels). The average number of lots created per subdivision was 3.4. The average lot size of the 15 pre-subdivision parcels was 148.3 acres. After subdivision, the average lot size of the resulting 51 parcels was 43.6 acres. The median lot size pre-subdivision was 36.5 acres and post-subdivision was 6.5 acres.

Subdivision occurred in three out of four zoning districts. Most subdivisions occurred in the Rural Residential District: nine subdivisions (resulting in the creation of 32 lots) occurred fully within this District, while one additional subdivision (resulting in the creation of three lots) took place partially in this District and partially within the Village District. Additionally, four subdivisions took place fully within the Village District and only one subdivision transpired in the Woodland District (the original 99 acre parcel was split into two lots of 34 and 65 acres).<sup>30</sup> No subdivisions took place in the Conservation District.

During the study period, no subdivision applications were denied and there was no tally of the number of applications that may have been submitted and then withdrawn.



**Figure 15: Shaker Mountain.**

Town of Huntington, VT Website:  
[http://huntingtonvt.org/index.php?option=com\\_content&view=article&id=136&Itemid=200331](http://huntingtonvt.org/index.php?option=com_content&view=article&id=136&Itemid=200331).

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<sup>29</sup> Please note that VNRC was unable to obtain copies of zoning bylaws in effect prior to 2009. Please also note that three subdivisions were recorded as taking place in "Agricultural/Residential/Recreational," which is not a district designation used in Huntington's Zoning Regulations (last amended in 2009). Huntington's current Zoning Administrator advised VNRC's staff to locate the address of each subdivision on Huntington's current zoning map (2008) to determine the district designation. Accordingly, VNRC's staff found that all three of these subdivisions would have taken place in the Rural Residential District under the 2009 bylaws.

<sup>30</sup> The subdivision in the Woodland District was approved on the condition that the lots remain as woodland/natural areas with only seasonal dwellings; no permanent residences would be allowed.

## VII. Jericho

The Town of Jericho is located in central Chittenden County and includes both Jericho Center and Jericho Corners. Jericho is comprised of 22,726 acres of land of which the following are conserved: 5,070 by the U.S. government (this includes the Ethan Allen Firing Range), 894 by the state of Vermont, 255 by the municipal government, and 857 by non-profit organizations. Many of the conserved lands are located within the Mills Riverside Park, Mobbs Farm Trails, and Old Mill Park.



Figure 16. Town Hall of Jericho, VT.  
Photo Credit: Thetrik. Wikipedia:  
<https://en.wikipedia.org/wiki/File:JerichoTownHall.JPG>.

After several decades of steady growth, the population of Jericho shrank slightly from 5,015 in 2000 to 5,009 in 2010 or by -0.1%. In spite of the slight decrease in population, the total number of housing units continued a decades-long trend of growth, increasing by 9.8% (from 1,774 in 2000 to 1,948 in 2010). The same was true for the total number of households - they increased by 7.4% (from 1,751 in 2000 to 1,881 in 2010).

At the start of the study period, Jericho was divided into eight zoning districts and three overlay areas. The zoning districts and their respective minimum lot sizes included: Agriculture (10 acres), Commercial (1 acre), Conservation (10 acres), Open Space (10 acres), Rural Residential (3 acres), Village (1 acre), Village Center (1 acre), and River (10 acres). The overlays included: Wetlands, Wellhead Protection, and Natural Resources Areas.<sup>31</sup>

In 2003, Jericho's zoning bylaws were revised;<sup>32</sup> however, the districts, their minimum lot sizes, and boundaries stayed the same.<sup>33</sup> Jericho's zoning regulations were revised again in 2009, this time with changes, most notably: the Conservation District was replaced by the Forestry District (which was assigned the same minimum lot size of 10 acres); the River District was dissolved and reconfigured as an overlay; the Forestry District assumed the boundaries of the Conservation District, except for two small areas that became part of the Open Space District.

Between 2002 and 2010, the Town of Jericho approved 35 subdivisions involving 2,669 acres and resulting in the creation of 138 lots (103 new lots in addition to the 35 pre-subdivision parcels). The average number of lots created per subdivision was 3.9. The average lot size of the 35 pre-subdivision parcels was 76.26 acres. After subdivision, the average lot size of the resulting 138 parcels was 19.34 acres. The median lot size pre-subdivision was 40.14 acres and post-subdivision was 3.09 acres.

Subdivision occurred in most zoning districts (except the Open Space District and the Conservation District, before it became the Forest District) and one overlay area. Nine subdivisions (resulting in 45 lots) took place within the Agricultural District. An additional five subdivisions (resulting in 20 lots) took place partially within the Agricultural District. Six subdivisions (resulting in 14 lots) took place in the Rural Residential District. An additional seven subdivisions (resulting in 42 lots) took place partially within the Rural Residential District. There were also three subdivisions that took place partially in the Forestry District. No subdivisions took place in the Open Space District. Finally, 11 subdivisions took place wholly or partially in the Village and Village Center Districts, resulting in the creation of 46 lots.

During the study period, no subdivision applications were denied and there was no tally of the number of applications that may have been submitted and then withdrawn.

<sup>31</sup> Jericho Zoning Regulations. Effective Nov. 15, 1999.

<sup>32</sup> Jericho Zoning Regulations. Effective Dec. 29, 2003.

<sup>33</sup> Please note that the conclusion regarding district boundaries was arrived at through a visual comparison of the zoning district maps associated with the 1999 and 2003 land use regulations. Therefore, it is possible that small boundary changes may have occurred but went unnoticed by the reviewer.



## VIII. Marlboro

Marlboro is located in south central Windham County, just off Route 9 and is home to the Southern Vermont Natural History Museum and Marlboro College. Marlboro partly lies in the Molly Stark State Park and the Hogback Mountain Conservation Area. The town encompasses 26,016 acres, of which 275 are conserved by the municipal government, three are conserved by the state of Vermont, and 2,619 are conserved by non-profit organizations.

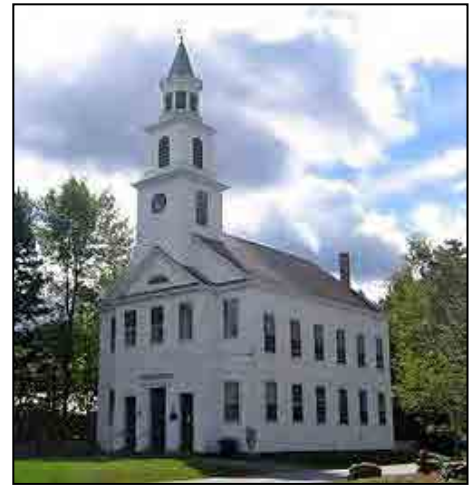
The population of Marlboro increased by 10.2% or from 978 in 2000 to 1,078 in 2010. Likewise, the number of households also increased during this same time period (growing by 14.5% or from 330 to 378), as did the total number of housing units (increasing by 5.8% or from 497 to 526).

Marlboro is divided into six zoning districts and three overlay areas.<sup>34</sup>

The zoning districts and their respective minimum lot sizes include: Rural Residential (2 acres), Recreational-Commercial (2 acres), Rural-Commercial (2 acres), Resource Production (10 acres), Resource Conservation (27 acres), and Educational (27 acres). The overlays include: Shore Land, Surface Water Buffer, and Flood Hazard Area.

Between 2002 and 2010, the Town of Marlboro approved 29 subdivisions involving 1,782 acres and resulting in the creation of 69 lots (40 new lots in addition to the 29 pre-subdivision parcels). The average number of lots created per subdivision was 2.38. The average lot size of the 29 pre-subdivision parcels was 61.98 acres. After subdivision, the average lot size of the resulting 69 parcels was 25.84 acres. The median lot size pre-subdivision was 37.4 acres and post-subdivision was 10.1 acres.

Subdivision only occurred in one zoning district: the Rural Residential District, which resulted in the creation of 69 lots. Additionally, no subdivisions were denied during the study period and there was no tally of the number of applications that may have been submitted and then withdrawn.



**Figure 17: Marlboro Meeting House.**

Wikipedia:

[http://en.wikipedia.org/wiki/Marlboro,\\_Vermont](http://en.wikipedia.org/wiki/Marlboro,_Vermont).

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<sup>34</sup> These districts and overlay areas are laid out in Marlboro's Zoning Regulations (March 2007). VNRC staff confirmed with town officials (phone conversation on July 22, 2013) that no significant changes were made to these districts during the study period (2002-2010).

## IX. Monkton

Monkton is located in Addison County, between Burlington and Middlebury. The town encompasses 23,187 acres of which nine are conserved by the state of Vermont, 233 are conserved by the municipal government, and 1,124 are conserved by non-profit organizations.

Between 2000 and 2010 the population of Monkton grew by 12.6% or from 1,759 to 1,980 residents. Between 2000 and 2010, the total number of households in Monkton increased by 15.4% or from 642 to 741. In regard to housing units, Monkton has experienced steady growth since the 1950s.

Between 2000 and 2010 the total number of housing units increased by 16.2% or from 687 to 798.

Monkton is divided into seven zoning districts and one flood hazard overlay.<sup>35</sup> The zoning districts and their minimum lot sizes include: Rural Agricultural 1 (1 acre), Rural Agricultural 2 (2 acres), Rural Agricultural 5 (5 acres), Rural Agricultural District – Village 1 (1 acre), Rural Agricultural District – Village 5 (5 acres), Wet Land [sic] (25 acres), and Forest (25 acres).

Permitted uses include single and multi-family dwellings in all districts except for the Wet Land and Forest Districts, where conditional uses include single-family dwellings only. The Forest District encompasses “those areas designated in the Town Plan as a Conservation District and which do not fall into the category of a Flood Hazard District or Wet Land District.”<sup>36</sup> Permitted uses in the Forest District include “commercial or private forest uses, which would not create any erosion problems and would not harm any significant resources.”<sup>37</sup>

Between 2002 and 2010, the Town of Monkton approved 51 subdivisions involving 3,679 acres and resulting in the creation of 177 lots (126 new lots in addition to the 51 pre-subdivision parcels). The average number of lots created per subdivision was 3.47. The average lot size of the 51 pre-subdivision parcels was 72.28 acres. After subdivision, the average lot size of the resulting 177 parcels was 20.79 acres. The median lot size pre-subdivision was 34.94 acres and post-subdivision was 5.1 acres.

Subdivision occurred in all zoning districts except Rural Agricultural – Village 5. Most subdivisions occurred in the Rural Agricultural 5 (RA-5) and Rural Agricultural 2 (RA-2) Districts. In RA-5: 22 subdivisions resulting in 86 lots took place fully in this District, while an additional nine subdivisions resulting in 36 parcels took place partially in this District. In RA-2: 10 subdivisions resulting in 30 lots took place fully in this District, while an additional five subdivisions resulting in 21 lots took place partially in this District. One subdivision (resulting in the creation of three lots) took place partially within a conservation area, which was interpreted as lying within the Forest District.<sup>38</sup> Additionally, one subdivision took place partially within the Wet Land District (resulting in the creation of two lots).

No subdivisions were denied during the study period and there was no tally of the number of applications that may have been submitted and then withdrawn.



Figure 18: Monkton Town Hall. Wikipedia: [http://en.wikipedia.org/wiki/Monkton,\\_Vermont](http://en.wikipedia.org/wiki/Monkton,_Vermont).

<sup>35</sup> Monkton Zoning and Subdivision Regulations. Amended Jan. 1986. Note: The 1986 zoning regulations controlled throughout the study period (2002-2010).

<sup>36</sup> Monkton Zoning and Subdivision Regulations. Amended Jan. 1986. Article VII, Section 700(8) (page number unavailable).

<sup>37</sup> Ibid.

<sup>38</sup> Please note that this subdivision was recorded as taking place in the RA-2/CON Districts. While a ‘Conservation District’ was mentioned in the 1978 Municipal Development Plan, no such zoning district existed during the study period. However, the 1986 zoning regulations describe the Forest District as encompassing the conservation area not included in Flood Hazard and Wet Land Districts.

## X. Morristown

Morristown, including the Village of Morrisville, is located in south central Lamoille County near the resort communities of Stowe and Cambridge (home to Smuggler’s Notch Resort) and encompasses Lake Lamoille as well as portions of the Lamoille River Watershed and Mount Mansfield State Park. The town consists of 33,030 acres of which 4,255 are conserved by the state of Vermont, 10 are conserved by the municipal government, and 1,670 are conserved by non-profit organizations.



Figure 19. Wikipedia: [http://en.wikipedia.org/wiki/Morristown,\\_Vermont](http://en.wikipedia.org/wiki/Morristown,_Vermont).

From 2000 to 2010 the population of Morristown grew by 1.7% (from 5,139 to 5,227 residents). During that same period, the total number of housing units also grew (this time by 9.6% or from 2,271 to 2,488), as did the total number of households, which increased by 4.6%, (from 2,101 to 2,197).

Morristown is divided into 14 zoning districts and four overlay areas. The zoning districts include: Central Business, Commercial, Business Enterprise, Neighborhood Commercial, Mixed Office Residential, Industrial, Special Use, Rural Residential with Agriculture and Special Industry, Rural Residential with Agriculture, Lower Village Gateway Commercial, Airport Business, and the High, Medium and Low Density Residential Districts.<sup>39</sup> The majority of the town is located in the Rural Residential with Agricultural District (2 – 3 acres).<sup>40</sup> The overlays include Flood Hazard Areas, Ground Water Source Protection Areas, Environmental Protection Areas and Airport Hazard Areas.

Between 2002 and 2010, the municipal government approved 103 subdivisions involving 3,418.15 acres and resulting in the creation of 326 lots (223 new lots in addition to the 103 pre-subdivision parcels). The average number of lots created per subdivision was 3.17. The average lot size of the 103 pre-subdivision parcels was 33.19 acres. After subdivision, the average lot size of the resulting 326 parcels was 10.49 acres. The median lot size pre-subdivision was 17 acres and post-subdivision was 3.45 acres.

Subdivision occurred in nine zoning districts. Most subdivisions occurred in the Rural Residential with Agriculture District: 81 subdivisions took place in this District, resulting in the creation of 249 lots. Additionally, 10 subdivisions took place in the Low Density Residential District, resulting in the creation of 46 lots.








No subdivisions were denied during the study period and there was no tally of the number of applications that may have been submitted and then withdrawn.

<sup>39</sup> These districts are listed in Morristown’s 2011 Zoning and Subdivision Bylaws. Town officials confirmed (phone conversation with VNRC staff on July 22, 2013) that these districts existed throughout the study period (2002-2010) and were not significantly changed during bylaw revisions. The only exception is for the Airport Business and Lower Village Gateway Commercial Districts – these were first established in 2010.

<sup>40</sup> Two acres for single-family dwellings, three acres for multi-family dwellings, and two acres for each additional unit.

# Map 1 Zoning Morristown, Vermont

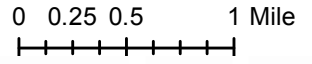
## Legend

-  Act 250 Permit
-  Subdivision
-  2013 Tax Parcel Boundary
-  Conserved Land
-  Habitat Block
-  Environmental Protection Overlay District
-  Groundwater Source Protection Overlay District



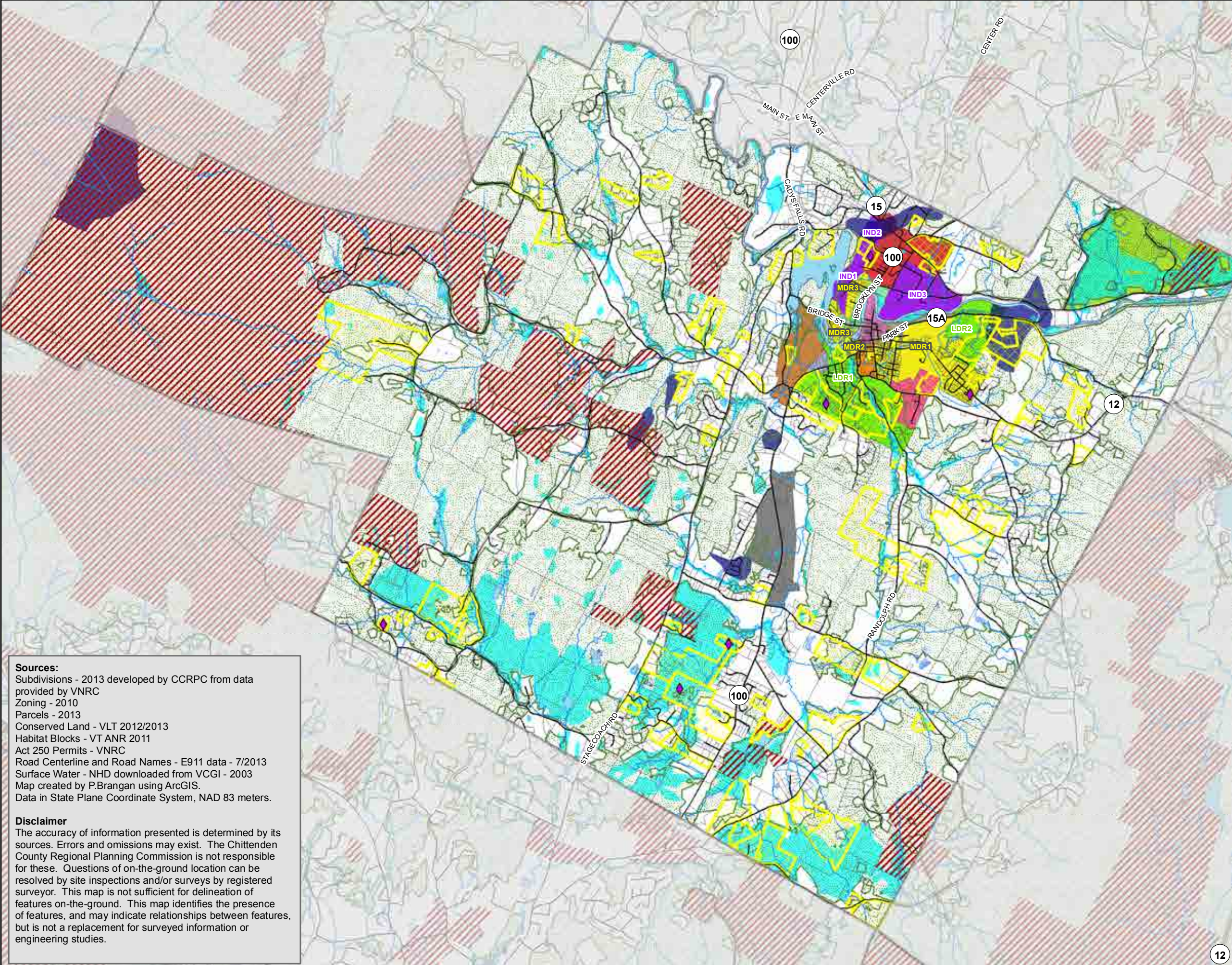
## Zoning District

-  Rural Residential with Agriculture
-  Rural Res with Agriculture & Special Industry
-  Low Density Residential 1, 2, & 3
-  Medium Density Residential 1, 2 & 3
-  High Density Residential
-  Mixed Office Residential
-  Business Enterprise
-  Commercial
-  Central Business
-  Lower Village Gateway Commercial
-  Neighborhood Commercial
-  Airport Business
-  Industrial 1, 2, & 3
-  Special Use






**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Zoning - 2010  
 Parcels - 2013  
 Conserved Land - VLT 2012/2013  
 Habitat Blocks - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - E911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS.  
 Data in State Plane Coordinate System, NAD 83 meters.

**Disclaimer**  
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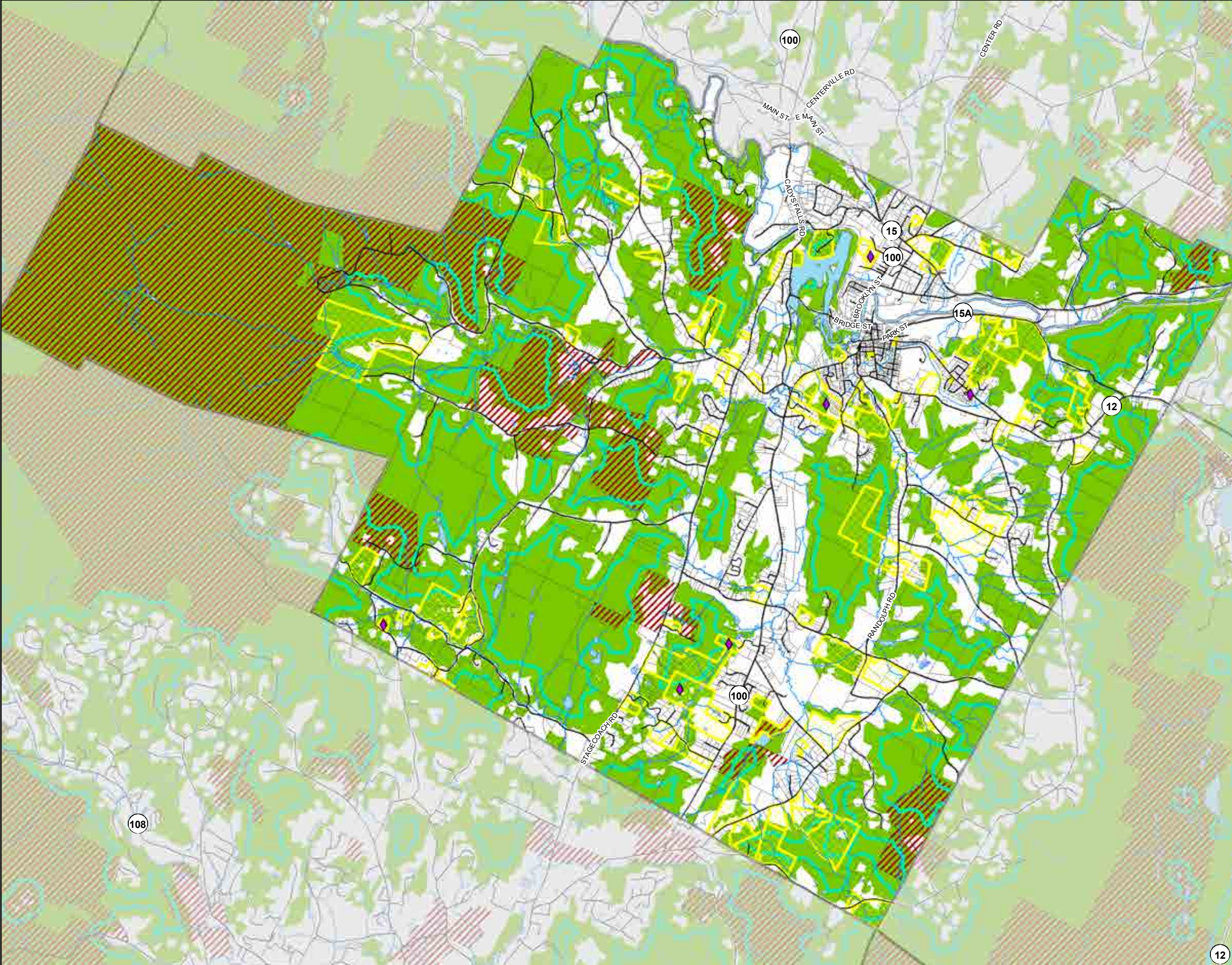
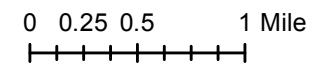
# Map 2 Habitat Blocks Morristown, Vermont

## Legend

-  Act 250 Permit
-  Subdivision
-  2013 Tax Parcel Boundary
-  Conserved Land
-  Habitat Block
-  Core Area of Habitat Block

**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Parcels - 2013  
 Conserved Land - VLT 2012/2013  
 Habitat Blocks and Core Area - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - E911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS.  
 Data in State Plane Coordinate System, NAD 83 meters.

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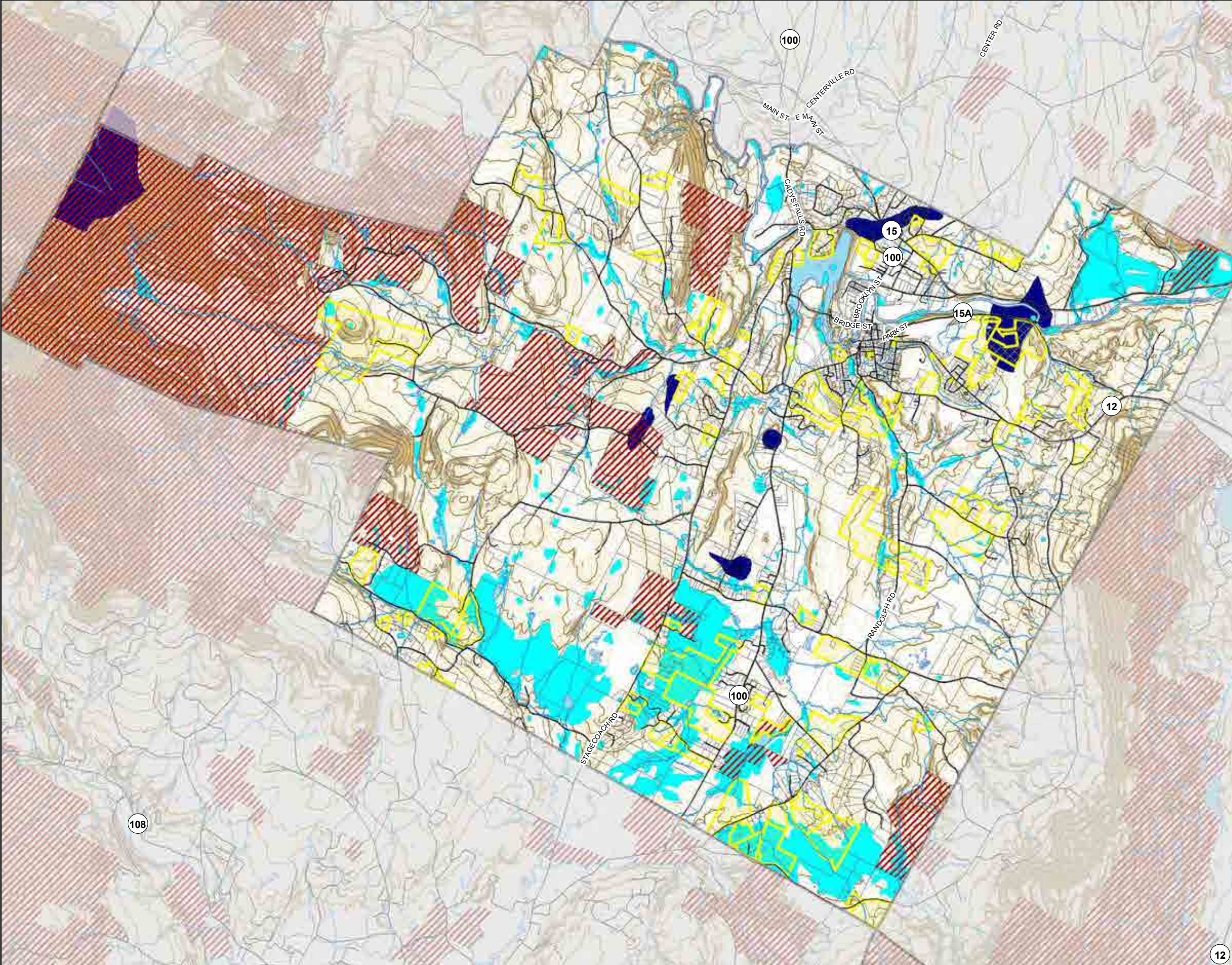
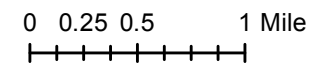
# Map 3 Steep Slope Morristown, Vermont

## Legend

-  Subdivision
-  2013 Tax Parcel Boundary
- Elevation - 20 Ft. Interval**
-  Contour Line, Minor
-  Contour Line, Major;  
 Contour Line, Intermediate
-  Conserved Land
-  Environmental Protection Overlay District
-  Groundwater Source Protection Overlay District
-  Slope Greater Than 25%

**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Parcels - 2013  
 Overlay District data from - ANR Natural Resource atlas  
 Conserved Land - VLT 2012/2013  
 Elevation - generated from 10 m NED DEM 2012  
 Steep Slope - derived from USGS 2012 data  
 Road Centerline and Road Names - E911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS.  
 Data in State Plane Coordinate System, NAD 83 meters.

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## XI. Richmond

Richmond is located in the western foothills of the Green Mountains on the eastern edge of the Lake Champlain Valley. The town encompasses 20,691 acres, of which 2,012 are conserved by the state of Vermont and 682 are conserved by non-profit organizations.

From 2000 to 2010, the population of Richmond fell slightly (by - 0.2% or from 4,090 to 4,081 residents). In spite of the slight decrease in population, the total number of households continued its decades-long upward trajectory: Between 2000 and 2010, the number of households increased by 5.5% (or from 1,504 to 1,586). The same was true for the total number of housing units, which increased by 8.2% (or from 1,528 to 1,653) during the same period.

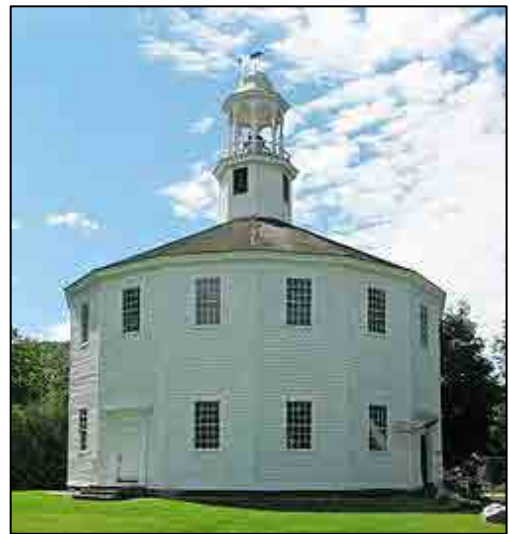
Throughout the study period, Richmond was divided into eight zoning districts and several overlays. The zoning districts and their respective minimum lot sizes include: Agricultural Residential (1 acre), High Density Residential (2/3 or 1 acre), Residential Commercial (1/3 or 1 acre), Gateway Commercial (1/3 or 1 acre), Village Commercial (1/3 or 1 acre), Commercial (1/3 or 1 acre), Industrial Commercial (1 acre) and Mobile Home Park (1 or 10 acres).<sup>41</sup> Overlays include: Shoreline Protection Zone, Flood Hazard Zone, and Water Supply Source Protection Area. Please note that Richmond does not have a forest district.

While Richmond's zoning regulations were updated several times throughout the study period, the districts and their minimum lot sizes and stated purposes remained similar. However, one noticeable and significant change included the shift of agriculture, silviculture, and horticulture from permitted uses to just conditional uses in 2009 for all zoning districts except the Agricultural Residential and Mobile Home Parks districts.

Between 2002 and 2010, the Town of Richmond approved 33 subdivisions involving 1,452 acres and resulting in the creation of 103 lots (70 new lots in addition to the 33 pre-subdivision parcels). The average number of lots created per subdivision was 3.12. The average lot size of the 33 pre-subdivision parcels was 44 acres. After subdivision, the average lot size of the resulting 103 parcels was 14.1 acres. The median lot size pre-subdivision was 21.8 acres and post-subdivision was 2.4 acres.

Subdivision occurred in four zoning districts. Most subdivisions occurred in the Agricultural Residential District: 26 subdivisions took place in this District, resulting in the creation of 77 lots. Additionally, five subdivisions took place in the High Density Residential District, resulting in the creation of 22 lots.

No subdivisions were denied during the study period and there was no tally of the number of applications that may have been submitted and then withdrawn.



**Figure 20: The Round Church in Richmond, VT.** Wikipedia: [http://en.wikipedia.org/wiki/Richmond,\\_Vermont](http://en.wikipedia.org/wiki/Richmond,_Vermont).







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<sup>41</sup> Please note that acreage ranges for minimum lot size are contingent upon connection to municipal water and sewer systems versus private well, in addition to the number of housing units. The only exception is for the Mobile Home Park District in which 1 acre is the minimum lot size for a parcel that is not being used for a mobile home park and 10 acres is the minimum (and at least ¼ acre per dwelling unit) for a lot that is being used as a mobile home park.


# Map 1 Zoning Richmond, Vermont

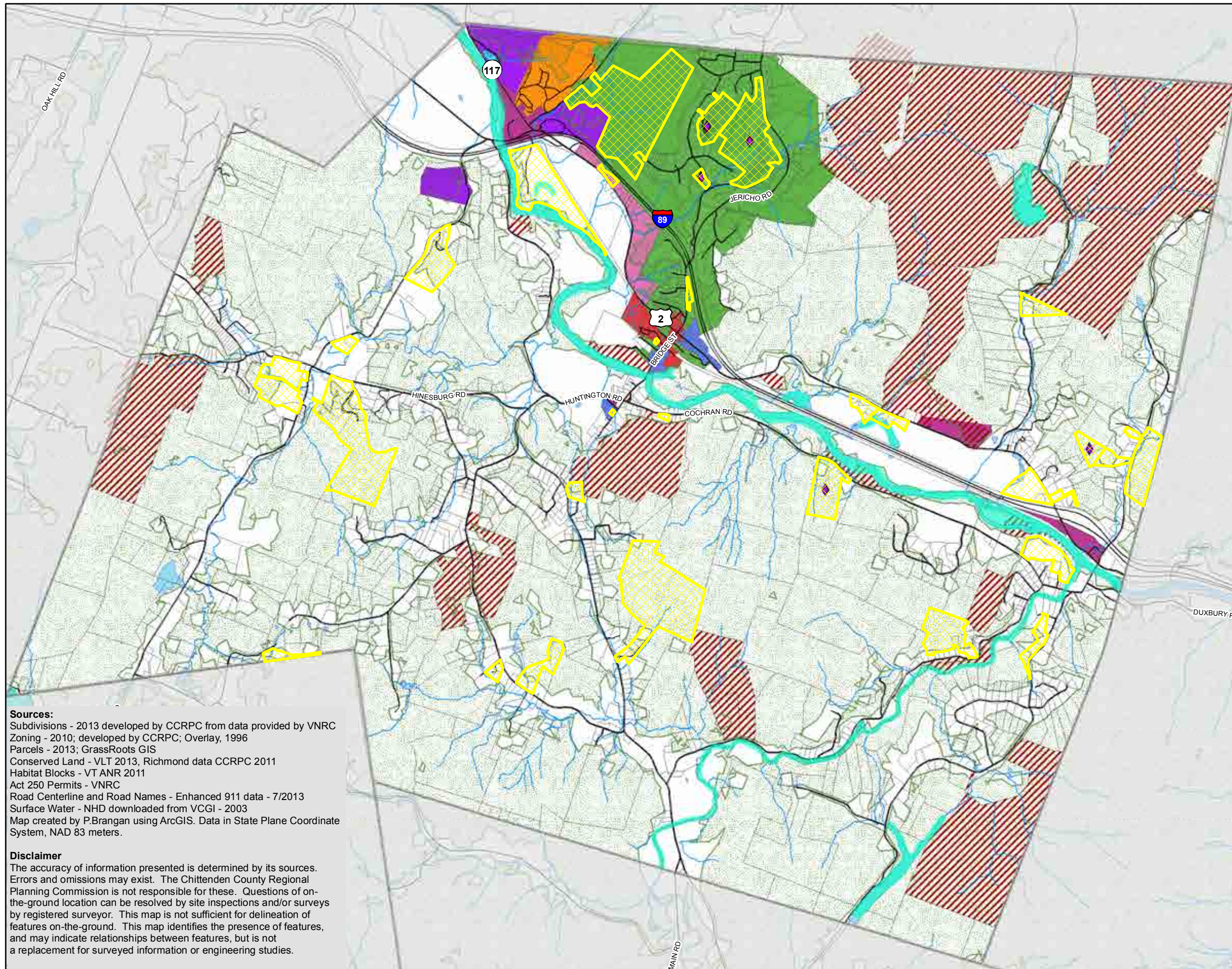
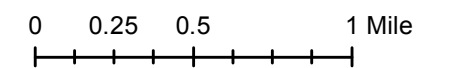


## Legend

-  Subdivision
-  Act 250 Permit
-  2013 Tax Parcel Boundary
-  Habitat Block
-  Conserved Land
-  Surface Water Overlay District

## Zoning District

-  Agricultural/Residential
-  High Density Residential
-  Residential/Commercial
-  Commercial
-  Industrial/Commercial
-  Gateway Commercial
-  Village Commercial
-  Mobile Home Park



**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Zoning - 2010; developed by CCRPC; Overlay, 1996  
 Parcels - 2013; GrassRoots GIS  
 Conserved Land - VLT 2013, Richmond data CCRPC 2011  
 Habitat Blocks - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - Enhanced 911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS. Data in State Plane Coordinate System, NAD 83 meters.







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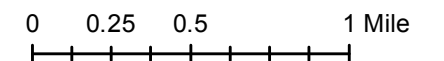


# Map 2 Habitat Blocks Richmond, Vermont



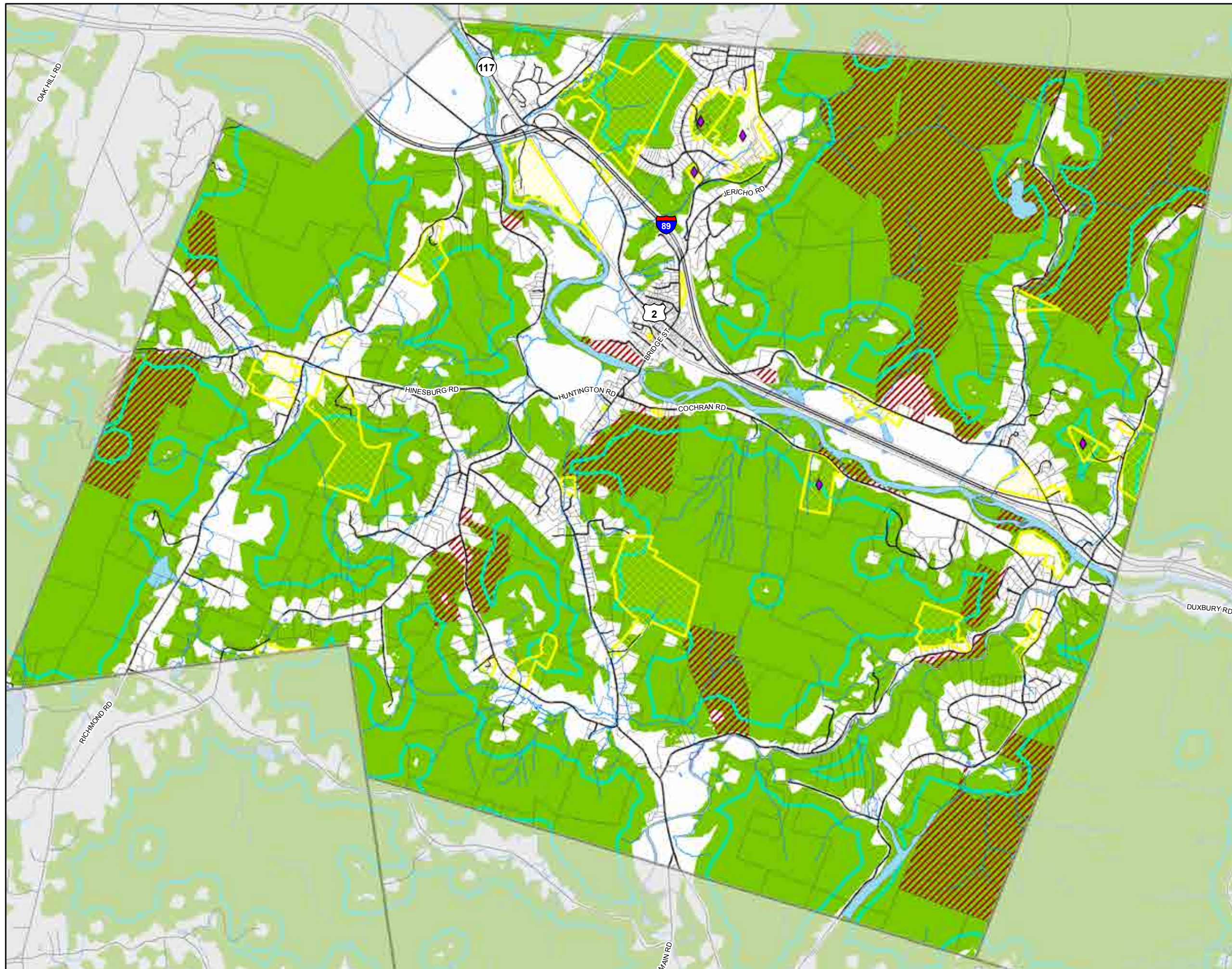
## Legend

-  Act 250 Permit
-  Subdivision
-  2013 Tax Parcel Boundary
-  Conserved Land
-  Habitat Block
-  Core Area of Habitat Block



**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Parcels - 2013; GrassRoots GIS  
 Conserved Land - VLT 2013, Richmond data CCRPC 2011  
 Habitat Blocks and Core Area - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - E911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
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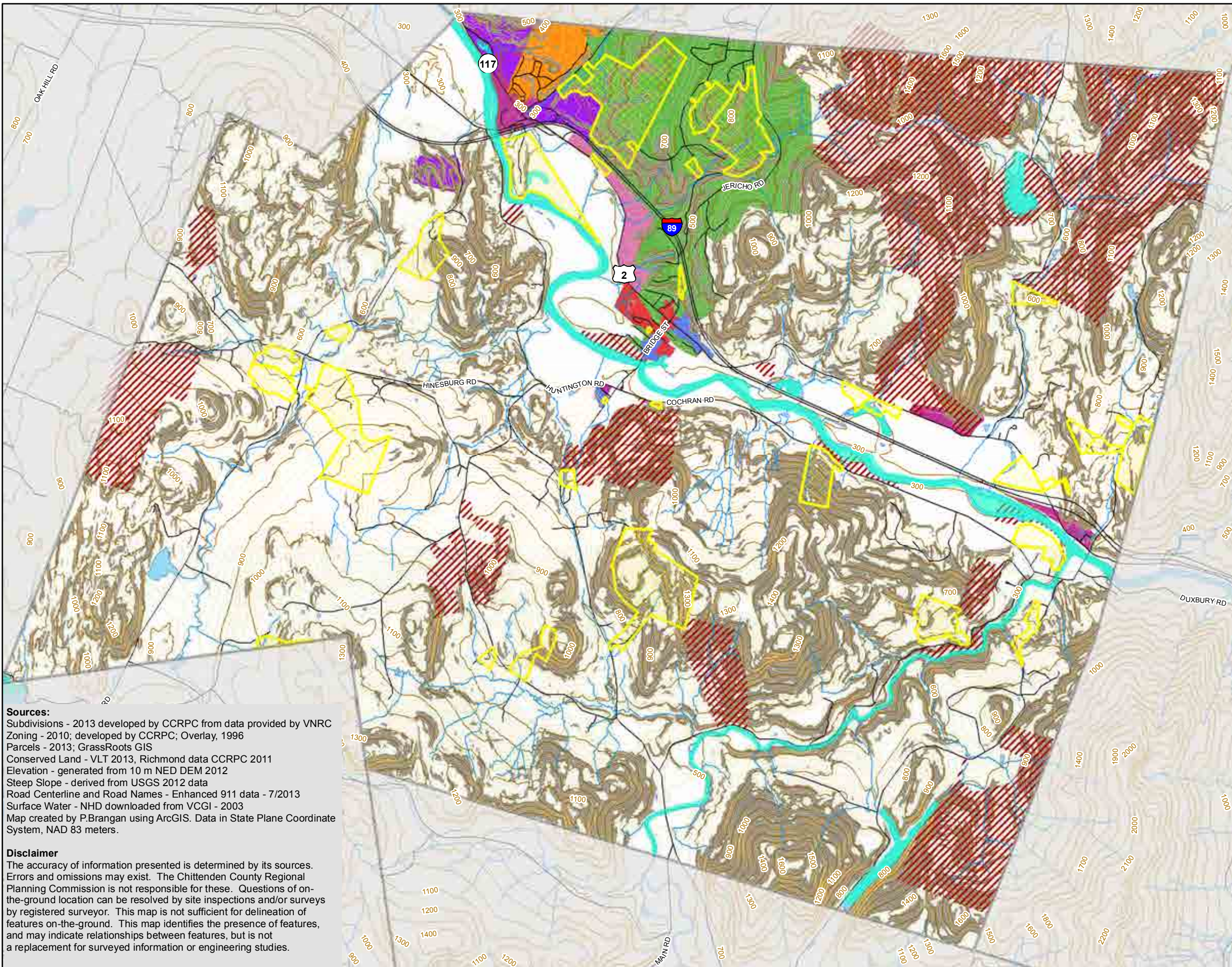
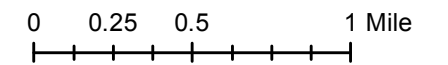


# Map 4 Steep Slope Richmond, Vermont



## Legend

-  Subdivision
-  Conserved Land
- Elevation - 20 Ft Interval**
-  Minor Contour Line
-  Major Contour Line
-  Slope Greater than 25%
-  Surface Water Overlay District
- Zoning District**
-  Agricultural/Residential
-  High Density Residential
-  Residential/Commercial
-  Commercial
-  Industrial/Commercial
-  Gateway Commercial
-  Village Commercial
-  Mobile Home Park



**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Zoning - 2010; developed by CCRPC; Overlay, 1996  
 Parcels - 2013; GrassRoots GIS  
 Conserved Land - VLT 2013, Richmond data CCRPC 2011  
 Elevation - generated from 10 m NED DEM 2012  
 Steep Slope - derived from USGS 2012 data  
 Road Centerline and Road Names - Enhanced 911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS. Data in State Plane Coordinate System, NAD 83 meters.

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## XII. Shrewsbury

Shrewsbury is located in Rutland County, just south of Killington Peak, and lies partially within the Coolidge State Forest and the Green Mountain National Forest. The town consists of 32,122 acres of which 5,807 are conserved by the state of Vermont, 1,907 are conserved by the U.S. government, 142 are conserved by the municipal government, and 1,809 are conserved by non-profit organizations.

From 2000 to 2010 the population of Shrewsbury declined slightly (by -4.7% or from 1,108 to 1,056 residents). In spite of the decline in population, the total number of households increased by 4.7% (or from 426 in 2000 to 446 in 2010). Likewise, the total number of housing units also increased during this same decade: by 12.3% (or from 506 to 568).



**Figure 21: Shrewsbury Meeting House.** Town of Shrewsbury, VT Website:  
<http://www.shrewsburyvt.org/community.php>.

During the study period, Shrewsbury was divided into six zoning districts and one overlay area.<sup>42</sup> The zoning districts and their respective minimum lot sizes include: Historic (0.5 – 5 acres), Village Residential (0.5 – 1 acre), Commercial (1 – 1.2 acres), Rural Residential (4 acres<sup>43</sup>), Limited Residential (10 acres<sup>44</sup>) and High Elevation (10 acres). Additionally, there is a Special Features Overlay – development in this zone is subject to conditional use review in order to protect fragile and critical natural resources. Certain resources and accompanying standards are highlighted in the description of this Overlay: Wetlands, Deeryards, Cuttingsville Aquifer Recharge Areas, and Meadowlands.

Between 2002 and 2010, the Town of Shrewsbury approved 24 subdivisions involving 2,344 acres and resulting in the creation of 50 lots (26 new lots in addition to the 24 pre-subdivision parcels). The average number of lots created per subdivision was 2.08. The average lot size of the 24 pre-subdivision parcels was 97.8 acres. After subdivision, the average lot size of the resulting 50 parcels was 46.9 acres. The median lot size pre-subdivision was 40.5 acres and post-subdivision was 10.3 acres.

Subdivision occurred in all districts except the High Elevation and Commercial Districts.<sup>45</sup> Most subdivisions occurred in the Rural Residential District: 12 subdivisions resulting in the creation of 24 lots took place fully within this District, while an additional five subdivisions (resulting in 11 lots) took place partially in this District. Additionally, several subdivisions took place within the Special Features Overlay: three subdivisions triggered a review based on Meadowlands, two involved Open Space, and another involved Deeryards.<sup>46</sup>

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<sup>42</sup> The districts described are set forth in the zoning regulations dated April 5, 1988. The new zoning regulations came into effect in 2009. There was only one subdivision in 2009 that was possibly reviewed under the new regulations, but it occurred in the Rural Residential District, which remains similar to the former Rural Residential District in terms of minimum lot size (4 acres).

<sup>43</sup> The minimum “project size” is 10 acres for a planned residential development. “Project” is not defined.

<sup>44</sup> The minimum “project size” is 20 acres for a planned residential development. “Project” is not defined.

<sup>45</sup> This conclusion is only partially verified given that two subdivisions (dated 2005) were recorded as taking place in the “Meadow Land Overlay,” but, the underlying district was not identified. By comparing Google Maps and Shrewsbury’s current zoning map, we can estimate that one of the subdivisions (on Spring Lake Rd.) probably occurred in the Limited Residential District, while the other subdivision (on Lincoln Hill Rd.) probably occurred in the Rural Residential District.

<sup>46</sup> Please note that the 1988 Zoning Regulations do not identify standards specifically for “Open Space.” However, some subdivisions were recorded as triggering an “Open Space Overlay.” It is assumed in this analysis that “Open Space” refers to the standards for “Meadowlands” within the Special Features Overlay.

### XIII. Tinmouth

Tinmouth is located in Rutland County, north of Dorset and within the Taconic Mountain Range. The town is comprised of 18,176 acres, of which 1,244 are conserved by the state of Vermont as the Tinmouth Channel Wildlife Management Area, 190 are conserved by the municipal government, and 4,778 are conserved by non-profit organizations.

From 2000 to 2010 the population of Tinmouth grew by 8.1% (from 567 to 613 residents). During the same period, the total number of households also increased (by 10% or from 231 to 254 households), as did the number of housing units, which grew by 9% (or from 332 to 362 units).

For the bulk of the study period, Tinmouth was divided into four zoning districts and two overlay areas. The zoning districts and their respective minimum lot sizes included: Protection (no minimum lot size<sup>47</sup>), Conservation (25 acres), Rural Residential (5 acres), and Lakeshore (1 acre). The overlays included: Agricultural and Flood Hazard. In 2010, Tinmouth's zoning regulations were amended and a Ridgeline Protection Overlay was added.<sup>48</sup> The minimum lot size of the underlying district prevails for each overlay.

Between 2002 and 2010, the Town of Tinmouth approved 16 subdivisions involving 1,835 acres and resulting in the creation of 51 lots (35 new lots in addition to the 16 pre-subdivision parcels). The average number of lots created per subdivision was 3.19. The average lot size of the 16 pre-subdivision parcels was 114.7 acres. After subdivision, the average lot size of the resulting 51 parcels was 36 acres. The median lot size pre-subdivision was 97.3 acres and post-subdivision was 10 acres.

Subdivision occurred in all zoning districts. Most subdivisions occurred in the Rural Residential District: Six subdivisions occurred fully in this District, resulting in the creation of 19 lots, while an additional eight subdivisions took place partially within this District, resulting in the creation of 28 lots. There were also four subdivisions that took place partially in the Protection District, one that took place fully within the Conservation District, and an additional two that took place partially within the Conservation District.

No subdivisions were denied during the study period and there was no tally of the number of applications that may have been submitted and then withdrawn.



**Figure 22: Community Center and Elementary School in Tinmouth, VT.** Wikipedia: [http://upload.wikimedia.org/wikipedia/commons/2/2b/Tinmouth\\_Vermont\\_20040701.jpg](http://upload.wikimedia.org/wikipedia/commons/2/2b/Tinmouth_Vermont_20040701.jpg).

<sup>47</sup> There is no indication of a minimum lot size for the Protection District; however, the only allowed use is agriculture and the only permitted use is temporary structures.

<sup>48</sup> On July 22, 2013, VNRC staff spoke with the Tinmouth Zoning Administrator to confirm that no significant changes (other than those mentioned above) took place in regard to zoning districts during the study period (2002-2010). Accordingly, the 2005 zoning bylaws are relied upon for this analysis.

## XIV. West Windsor

West Windsor is located in Windsor County, west of the Connecticut River and at the base of Mount Ascutney, which operated as a downhill ski area during the study period. West Windsor encompasses 15,821 acres of which the following are conserved: 19 by the state of Vermont, 1,128 by the municipal government as a town forest, and 895 by non-profit organizations.

Between 2000 and 2010, West Windsor's population grew slightly (by 3% or from 1,067 to 1,099 residents). Like the population, the number of households also grew during this period (by 9.4% or from 456 to 499), as did the total number of housing units (by 11.6% or from 716 to 799).

Between 2002 and 2008, the following districts and their accompanying standards were in effect:<sup>49</sup> Village Residential, Village Commercial, Rural Residential 5/4, Resort Residential, Industrial, Agriculture/Scenic, Upland/Forestry-10, and Upland/Forestry. The Upland/Forestry District had a 25 acre minimum lot size, while the Agricultural/Scenic District was set at 10 acres, and the Rural Residential 5/4 District ranged between five and four acres depending on whether development was appropriately clustered.<sup>50</sup> The largest district in terms of acreage was Rural Residential 5/4.

In 2008, West Windsor's zoning regulations underwent major changes. As a result, the town was divided into seven zoning districts and one Flood Hazard Overlay. The zoning districts and their respective minimum lot sizes included: Primary Growth Village (1 acre), Secondary Growth Residential (5 acres), Rural Residential (5 acres), Resort/Residential or "R/R" (¼ - 1 acre lot per family unit),<sup>51</sup> Resort/Conservation PUD (1-5 acres),<sup>52</sup> Light Industrial/Commercial (2 acres), and Conservation (40 acres). The largest district in terms of acreage was Rural Residential, followed by Conservation and Secondary Growth Residential.

Between 2002 and 2010, the Town of West Windsor approved 40 subdivisions involving 1,896 acres and resulting in the creation of 83 lots (43 new lots in addition to the 40 pre-subdivision parcels). The average number of lots created per subdivision was 2.1. The average lot size of the 40 pre-subdivision parcels was 47.39 acres. After subdivision, the average lot size of the resulting 83 parcels was 22.84 acres. The median lot size pre-subdivision was 185 acres and post-subdivision was 10.36 acres.

Subdivision occurred in the Industrial, Primary Growth Village, Resort Residential, Rural Residential, and Village Residential Districts. No subdivisions took place in the Conservation or Secondary Growth Residential Districts. The majority of subdivisions took place in the Rural Residential District: 33 subdivisions resulting in the creation of 68 lots. A total of three applications were denied during the study period: two were in the Resort Residential District and one was in the Village Residential District. One of the applications (in the Resort Residential District) was denied due to a previous agreement by the parent parcel owners and Summit Ventures not to develop the ridgeline. Additionally, one application was denied in the Village Residential District. There was no tally of the number of applications that may have been submitted and then withdrawn.



**Figure 23: The Village of Brownsville and Mount Ascutney in West Windsor, VT.** Photo Credit: Cathy Boedtker. Town of West Windsor, VT Website: <http://www.westwindsorvt.govoffice2.com/>.

<sup>49</sup> In 1988 and 2005, West Windsor's Zoning Regulations were revised; however, the districts stayed the same, and minimum lot sizes changed only slightly.

<sup>50</sup> These minimum lot sizes were outlined in both the 1988 and 2005 bylaws. This means that the minimum lot size for these districts did not change.

<sup>51</sup> All development in this district must be part of a Planned Unit Development (PUD). The range in minimum lot size per family unit is contingent upon different types of sewage disposal at the site.

<sup>52</sup> Most development in this district must be part of a Planned Unit Development (PUD) – the only exception is for agricultural and forestry use structures. The range in minimum lot size per family unit is contingent upon different types of sewage disposal at the site.

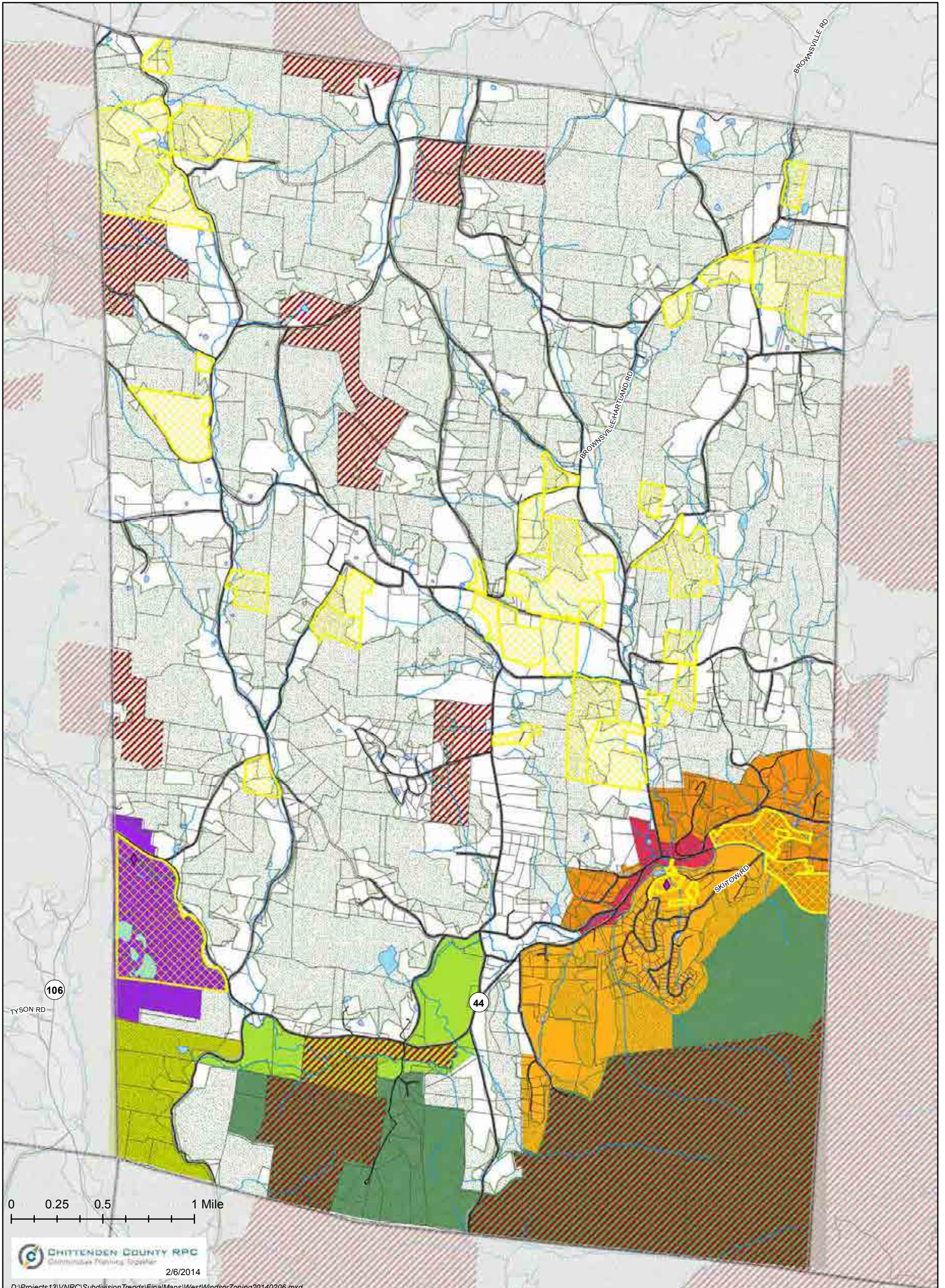
# Map 1 - Zoning thru 2008 West Windsor, Vermont



**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Zoning - 2008; TerraMap; Parcels - 2012; TerraMap  
 Conserved Land - VLT 2013  
 Habitat Blocks - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - Enhanced 911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS. Data in State Plane Coordinate System, NAD 83 meters.







**Disclaimer**  
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- |                            |                         |                        |
|----------------------------|-------------------------|------------------------|
| ◆ Act 250 Permit           | <b>Zoning District</b>  | ■ Right of Way         |
| ▨ Subdivision              | □ Rural Residential 5/4 | ■ Upland Forestry      |
| ⊕ 2012 Tax Parcel Boundary | ■ Agricultural Scenic   | ■ Upland Forestry - 10 |
| ▨ Habitat Block            | ■ Industrial            | ■ Village Commercial   |
| ▨ Conserved Land           | ■ Resort Residential    | ■ Village Residential  |



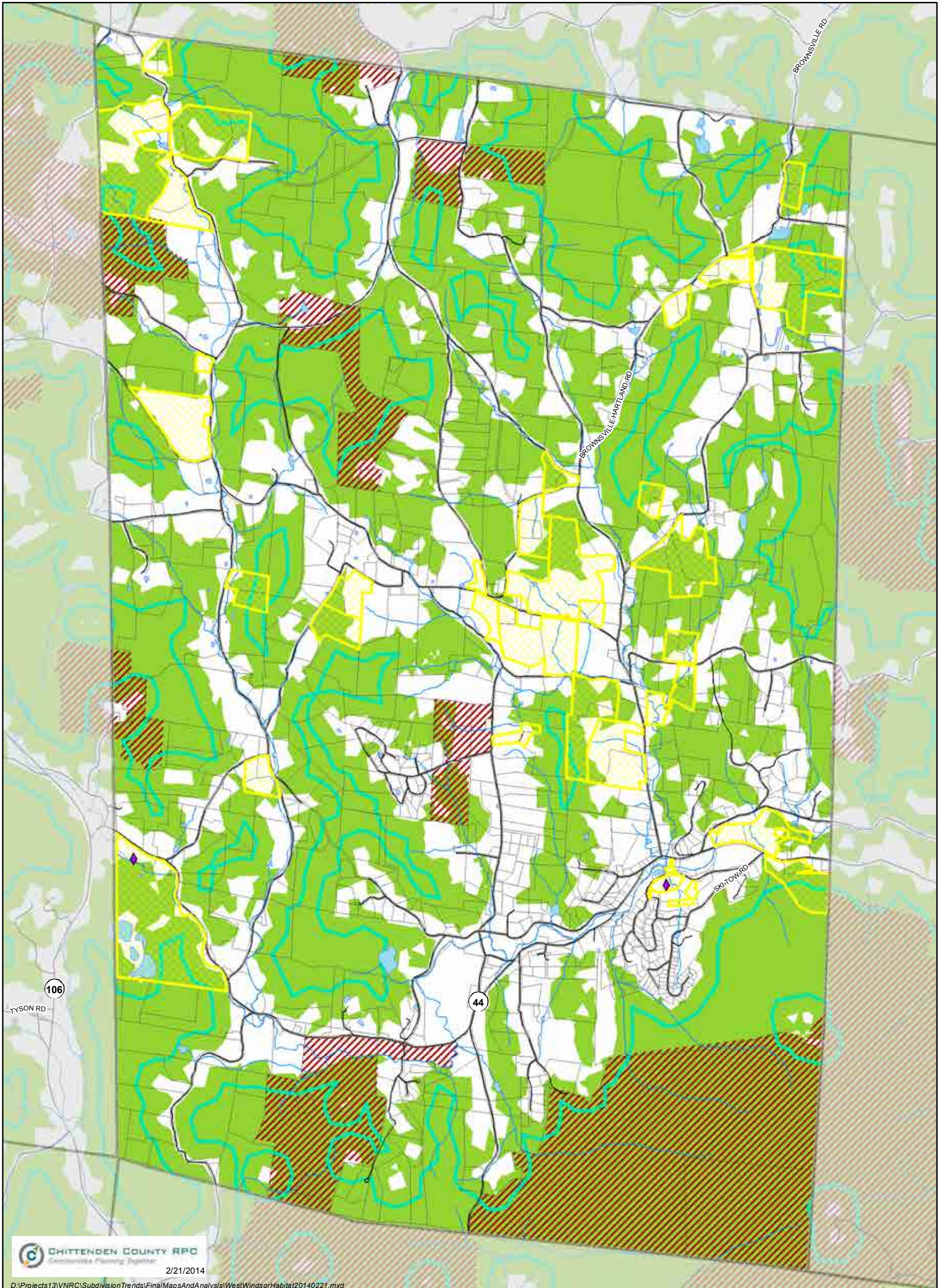
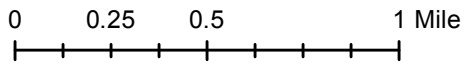
# Map 2 - Habitat Blocks West Windsor, Vermont

## Legend

-  Act 250 Permit
-  Subdivision
-  2012 Tax Parcel Boundary
-  Conserved Land
-  Habitat Block
-  Core Area of Habitat Block

**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Conserved Land - VLT 2013  
 Habitat Blocks and Core Area - VT ANR 2011  
 Act 250 Permits - VNRC  
 Road Centerline and Road Names - Enhanced 911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS. Data in State Plane Coordinate System, NAD 83 meters.

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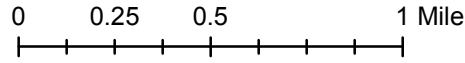
# Map 3 - Steep Slope West Windsor, Vermont



**Sources:**  
 Subdivisions - 2013 developed by CCRPC from data provided by VNRC  
 Conserved Land - VLT 2013  
 Elevation - generated from 10 m NED DEM 2012  
 Steep Slope - derived from USGS 2012 data  
 Road Centerline and Road Names - Enhanced 911 data - 7/2013  
 Surface Water - NHD downloaded from VCGI - 2003  
 Map created by P.Brangan using ArcGIS. Data in State Plane Coordinate System, NAD 83 meters.

## Legend

- |   |  |
|---|--|
|  Subdivision              |  Slope Greater Than 25% |
|  2012 Tax Parcel Boundary |  Conserved Land         |
| <b>Elevation - 20 Ft Interval</b>   |  |
|  Minor Contour Line       | <b>Natural Resource Related Zoning District</b>  |
|  Major Contour Line       |  Agricultural Scenic    |
|   |  Upland Forestry        |
|   |  Upland Forestry - 10   |



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