

**Subdivision and Land Use Change at the Municipal
Level: An Analysis of Trends and Strategies for
Maintaining Intact Forests in Vermont**

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Background

While close to 80% of the Vermont is forested, forest cover is actually declining in Vermont.

- Certain data show that we lost one half percent of forest cover on an annual basis between 1992 and 2002.
- Chittenden County experienced a 4.4% reduction in forestland between 1982-1997.

Development is responsible for this trend and forests are increasingly becoming fragmented across Vermont.



Photo: Alex Maclean

Background

- Fragmentation usually starts with subdivision, the division of a parcel into two or more smaller lots.
- The result is typically an increase in the number of parcel owners, which leads to new housing and infrastructure development (roads, septic, utility lines, etc.).

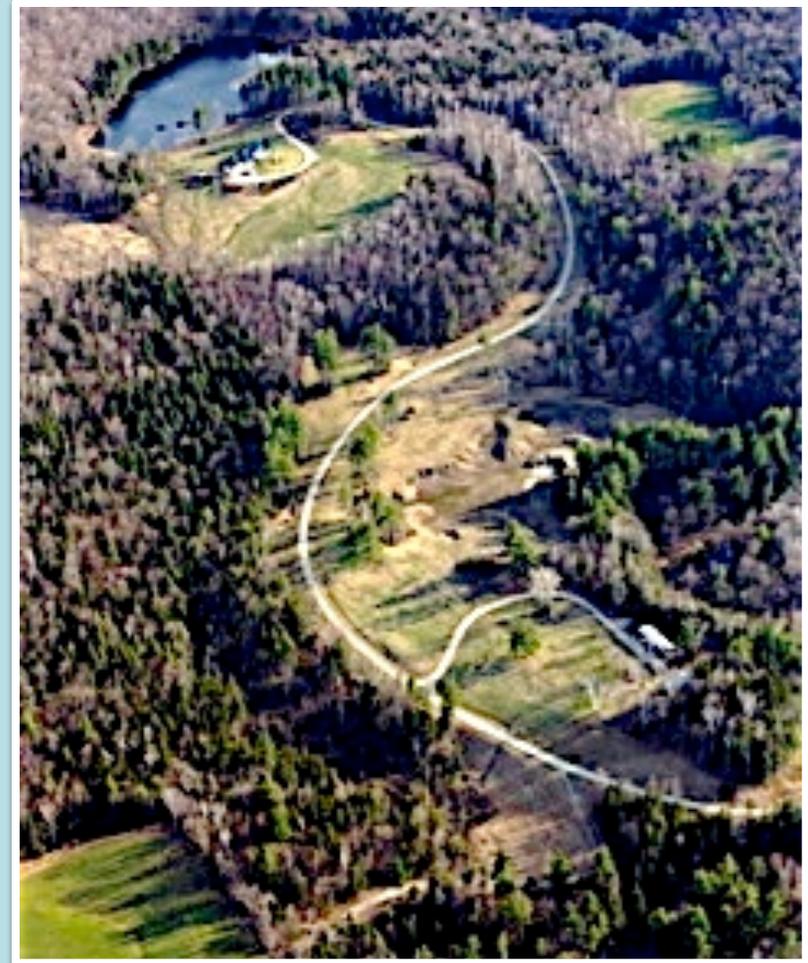


Photo: A. Blake Gardner

Background

- Subdivision is creating more parcels.
- The number of parcels increased from 61,900 in 1983 to 88,000 in 2008.
- Housing development on undeveloped forestland is increasing.
- Between 2003 and 2009, the amount of undeveloped forestland in parcels 50 acres or larger decreased by about 34,000 acres.

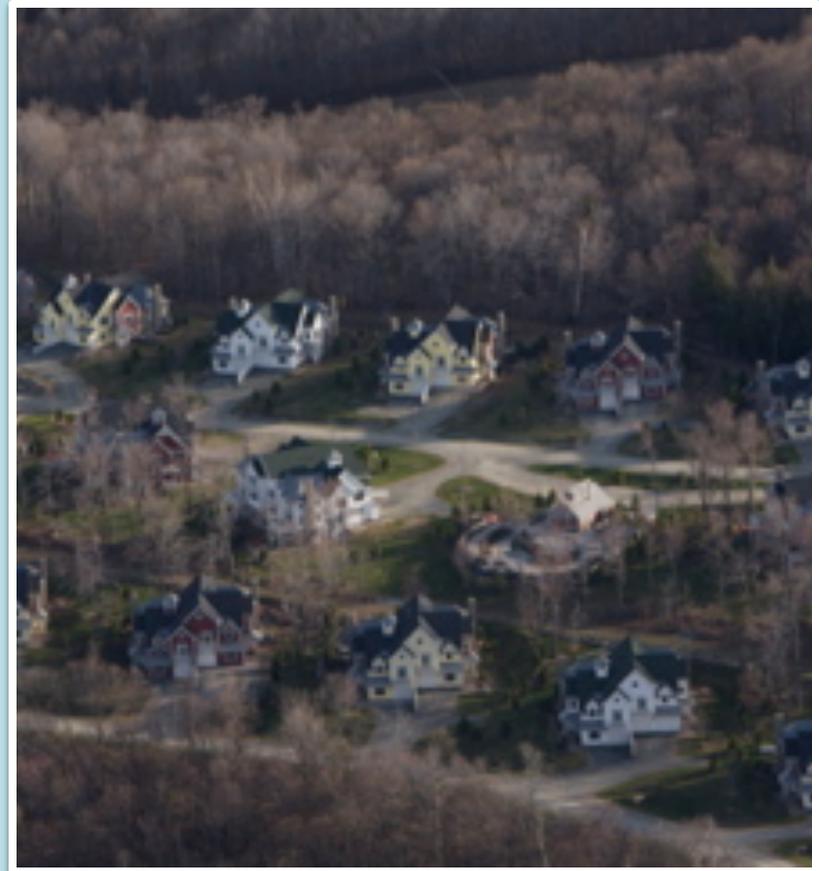


Photo: A. Blake Gardner

Methods

- 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.”
- 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 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 I report.

Methods

- Examined the degree to which Act 250 applied to subdivisions, and the implications of subdivision activity on the Use Value Appraisal (UVA or Current Use) Program.
- Spatial analysis of four case study towns to examine the impact of subdivision activity on wildlife habitat blocks. The spatial analysis overlaid habitat blocks (ANR data layer), zoning district boundaries, and parcels that were subdivided during the study period (2002-2010).

Results

Final report on subdivision research in 14 case study towns found:

- 1,580 lots were created from 544 subdivisions on a total of 46,272 acres of land.
- Phase I + Phase II study = 22 case study towns. 2,749 lots were created from 925 subdivisions over an 8 year period affecting a total of 70,827 acres of land.
- Only 1-2% triggered original jurisdiction under Act 250 review, meaning the project was large enough to trigger jurisdiction.

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

Phase II Report



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Mapping

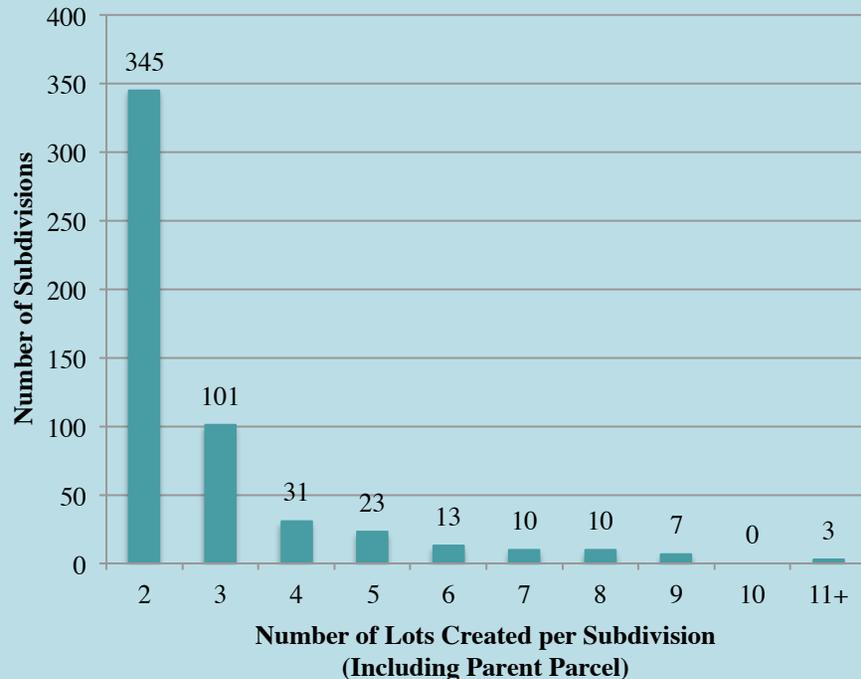
Pam Brangan, GISP, Senior Planner, Chittenden County Regional Planning Commission

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Results – Subdivision Analysis

The average subdivision resulted in between 2.1 - 3.9 lots (including the parent parcel).

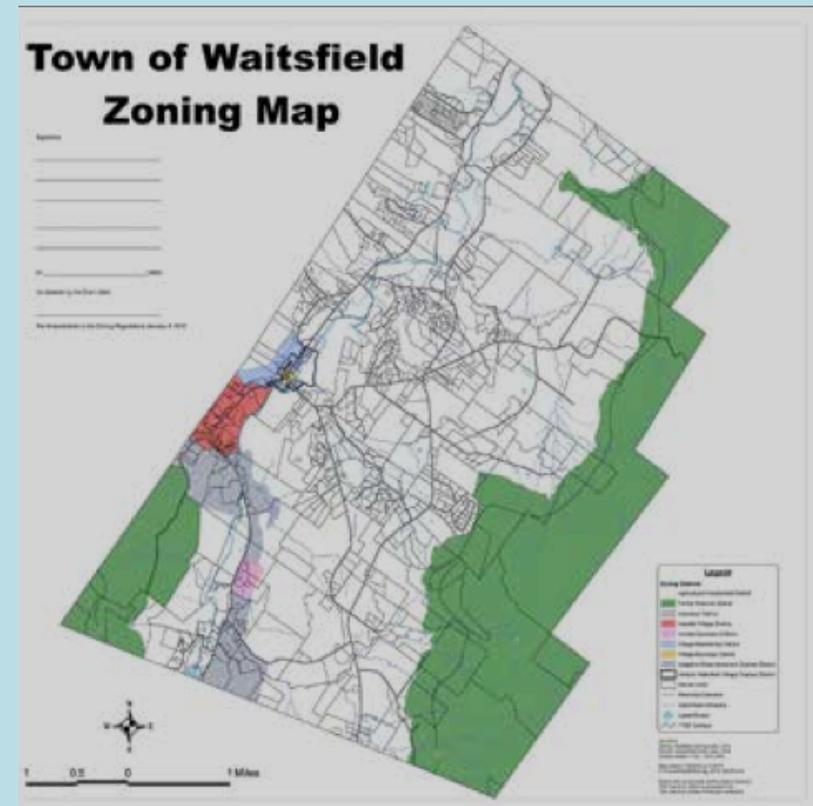
Lots Created By Subdivision



- The vast majority of subdivisions occurred in rural residential zoning districts.
- 79% of all subdivisions and 84% of the total acres subdivided were located either partially or fully within a “rural residential” type district.
- Forest resource features are vulnerable in towns that do not have adequate resource protection standards in rural residential districts.

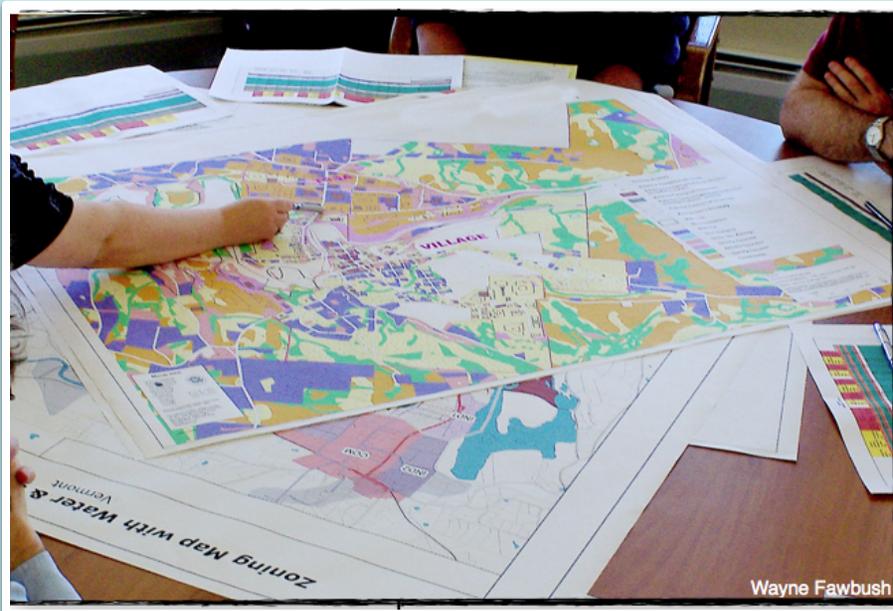
Results – Subdivision Analysis

- Very little subdivision activity took place fully or partially within natural resource related zoning districts.
- Only 15% of all subdivisions and 22% of the total acres subdivided were located either partially or fully within a natural resource related zoning district.
- Natural resource zoning districts appear to be effective in limiting subdivision.
- Contributing factors may include steep slopes, a higher percentage of conserved land, and higher minimum lot sizes.



Results – Subdivision Analysis

- Based on spatial analysis in four Phase II communities, between 50% and 68.8% of the subdivided acres were located within wildlife habitat blocks mapped by the Agency of Natural Resources.
- Subdivision increased the number of parcels potentially eligible for Current Use, but decreased the number of acres eligible for enrollment.
- In the 100+ acre category: before subdivision, all 97 parent parcels were eligible for Current Use. After subdivision, 137 parcels were eligible – an increase of 40 lots.



Implications and Applications in Vermont

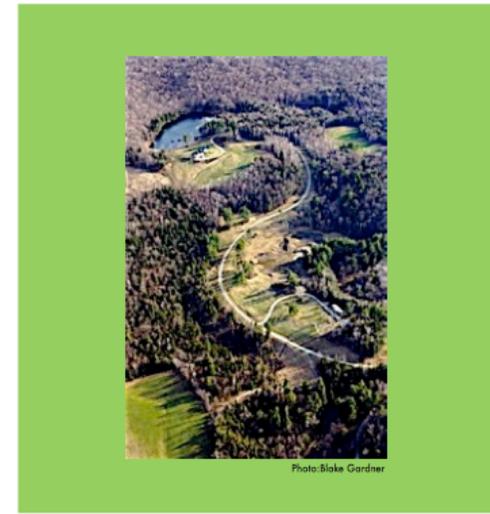
- Act 250 appears to play a nominal role in reviewing subdivision development.
- Municipalities will need to address the impacts of fragmentation from subdivision unless Act 250 is strengthened to address it.
- The subdivision analysis in the case study communities suggests that subdivision activity is limited in “natural resources” type zoning districts. Land use planning and implementation in the region should promote greater use of these districts.
- Subdivision activity is occurring predominately in “rural residential” type districts, which include large blocks of forestland. Land use planning should focus on implementing zoning and subdivision standards in rural residential type districts that minimize the impacts of forest fragmentation.

Strategy Development

Forest Fragmentation Action Plan

- A roadmap for implementing priority strategies for reducing forest fragmentation and parcelization.
- Outlines concrete action steps for planning and zoning, conservation, education and advocacy strategies at the local, regional and state level.
- Available at <http://vnrc.org/wp-content/uploads/2014/05/Final-Forest-Fragmentation-Action-Plan.pdf>

Forest Fragmentation ACTION PLAN



Why Vermont Needs a Forest Fragmentation Action Plan

While close to 80% of the state is forested, for the first time in over a century, forests are declining in Vermont. Development is responsible for this trend and forests are increasingly becoming fragmented across Vermont.

Fragmentation doesn't happen all at once - in fact, it's incremental, which is why it's so hard to notice on a day-to-day basis. It usually starts with subdivision, the division of a parcel into two or more smaller lots. The result is typically an increase in parcel owners, which leads to new housing and

infrastructure development (roads, septic, utility lines, etc.). When this development occurs, it "fragments" the landscape and diminishes the economic and ecological viability of forests.

Subdivision activity in Vermont does not look like that commonly seen in other parts of the country and usually portrayed by the media. Indeed, the term "subdivision" usually conjures up images of suburban neighborhoods with identical houses situated side-by-side. Because of the discrepancy between how the public collectively imagines subdivision and the reality, Vermonters are susceptible to thinking that subdivision is not a problem.

But subdivision and other types of land development are cumulatively impacting the viability of Vermont's forests. This is why we need a coordinated land use plan to reduce forest fragmentation, and it needs to occur at the local, regional, and state levels.

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Planning Process



This plan was developed by the Vermont Natural Resources Council (VNRC) with input from many partners including local planning and conservation commissions, selectboards, regional planning commissions, the VT Dept. of Forests, Parks and Recreation, the VT Fish and Wildlife Dept., the VT Dept. of Housing and Community Development, the VT Planners Association, and UVM Extension.

More than 36 individuals participated in a statewide workshop in Randolph, and more than 63 individuals participated in three regional workshops that took place in Craftsbury, Brandon, and Westminster. VNRC gathered feedback on different conservation strategies from the participants through discussion, ranking exercises, voting, and comment cards.

Priority Strategies

Planning &
Zoning

1. Map and inventory natural resources related to forests and wildlife; use these to develop local plan maps and policies.
2. Improve the quality of existing zoning and subdivision regulations.
3. Incorporate specific standards into existing zoning and subdivision regulations to reduce forest fragmentation.

Conservation
Programs

4. Increase the acreage of lands permanently protected from development through conservation easements.
5. Increase acres enrolled in the Use Value Appraisal program (“Current Use”) or a local tax stabilization program.
6. Provide education and training for local board members.

Education

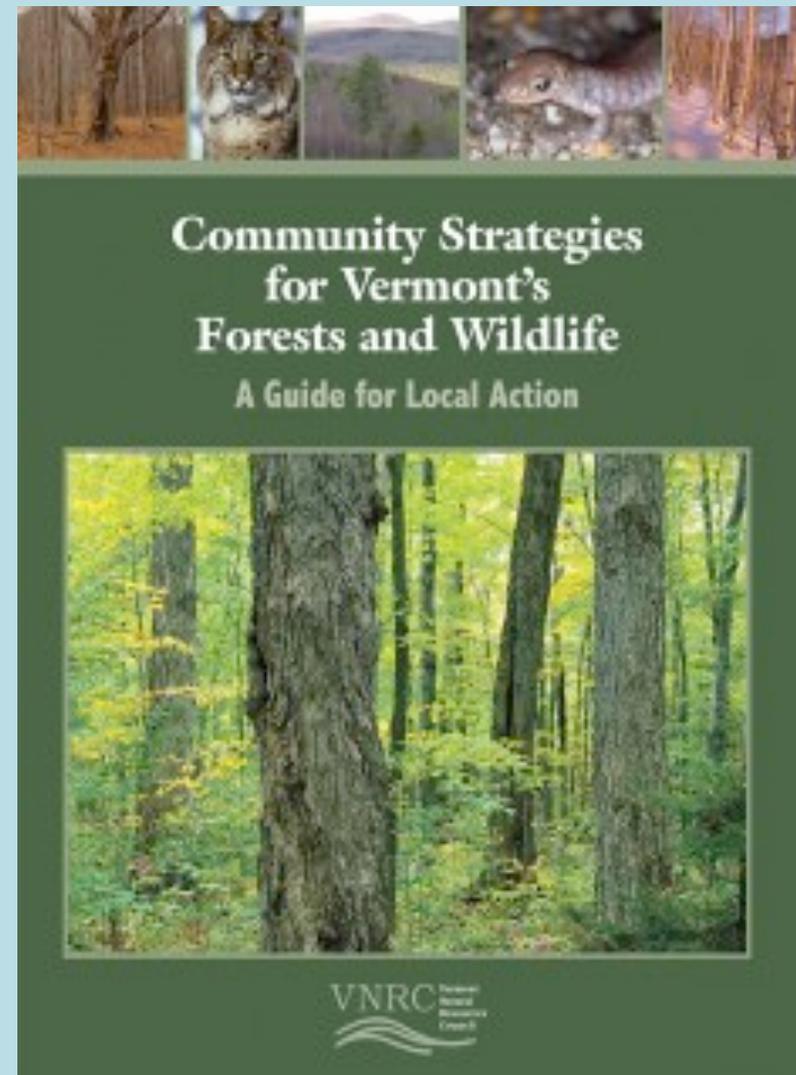
7. Educate private landowners and the general public.
8. Promote estate planning/long-term ownership.

Advocacy

9. Pursue legislative changes at the state level.

Strategy Development - Technical Assistance

- Provides 15 individual chapters on regulatory and non-regulatory strategies to sustain forests and wildlife at the local and regional level.
- Includes case studies, examples of definitions and regulatory standards to conserve forest resources, and illustrations for effective site design.
- Was distributed to every local planning and conservation commission and regional planning commission in VT.
- Available online at <http://vnrc.org/programs/forests-wildlife/guide/>



Community Planning Toolbox

The screenshot shows the VNRC website with a green header. The logo on the left reads 'VNRC Vermont Natural Resources Council'. Navigation links include 'HOME', 'CONTACT US', 'E-NEWS SIGN UP', a search bar, and a red 'DONATE' button. A secondary menu contains 'PROGRAMS', 'TAKE ACTION', 'RESOURCES', and 'ABOUT VNRC'. The main content area features the title 'Forest Fragmentation' with social sharing icons. Below is an 'IN BRIEF' section with a text box: 'Over 100 years ago, approximately 75 percent of Vermont's landscape was clear cut for pasture, timber, potash and fuel. Since that time, the land has healed and the forest has returned – approximately 80% of Vermont is now forested. While Vermont's forests no longer face the prospect of clearing for agriculture as they did 100 years ago, today Vermont's forests face a new threat: forest fragmentation, which is the result of scattered, poorly planned rural subdivision and development.' This is followed by 'THE ISSUE' section with two paragraphs of text and a landscape photograph. To the right, there is an illustration of a forest scene with a deer and a bear. Below the illustration is a 'Related Tools' list: 'Forest District', 'Natural Resources Overlay District', 'Conservation Zoning District', 'Subdivision Regulations', 'Conservation Easement', 'Road and Trail Policies', and 'Conservation Developments'. Underneath is a 'Related Case Studies' list: 'Forest Reserve District – Bennington', 'Forest Zoning Districts in Five Vermont Towns', and 'Wildlife Corridor Overlay Zone – Shrewsbury'.

- The online community planning toolbox is an online series of modules for local decision makers that provides:
 - overviews of planning and Land Use Law;
 - modules on land use strategies, tools, and case studies to address forest fragmentation; and
 - case studies of communities who've used the tools.
- Available at www.vnrc.org/resources/community-planning-toolbox/