Vermont in Transition:

A Summary of Social Economic and Environmental Trends

A study by

Center for Social Science Research at Saint Michael's College

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for the

Council on the Future of Vermont

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Chapter 3: LAND USE

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Chapter 3:
LAND USE

Vermont continues to be one of the most rural states, but the way in which land is used has undergone substantial change in recent years.[1] Vermonters have not been indifferent to these changes. For example, a 2008 statewide poll, commissioned by the Council on the Future of Vermont and conducted by the University of Vermont's Center for Rural Studies (CRS), found that more than one half of the respondents said that they were "very concerned" about pressure to convert open lands to residential, commercial or other development.[2] Similarly, two-thirds to three-quarters of those surveyed in four separate surveys sponsored by the Vermont Business Roundtable (VBR) between 1990 and 2005 felt that maintaining "Vermont's family farm" was "very important," and similar proportions gave the same high rating to "saving small towns."[3] Another pair of statewide surveys sponsored by Vermonters for a Sustainable Population found increasing support for the use of "stricter land use regulations to help protect the environment"—from 65% support in 1998 to 75% support in 2008.[4]

Planning bodies, informed by these types of findings and guided by public policy mandates, have tried to uphold the historic settlement pattern of compact village and urban centers separated by a rural countryside.[5] This chapter will identify trends in land use and consider some of the ways in which both the private and public sectors modify them.

[1] Only 38% of Vermont's population is urban, the lowest in the nation, just below Maine at 40%. The U.S. average is 79%. U.S. Department of Commerce, Economics and Statistics Administration, "State and Metropolitan Area Data Book: 2006," page 4.

[2] Council on the Future of Vermont Survey, 2008, available from the Vermont Center for Rural Studies.

[3] Vermont Business Roundtable, "Pulse of Vermont: Quality of Life Study," various years, by Vince Bolduc and Herb Kessel.

[4] Center for Social Science Research, Saint Michael's College, "1998 Vermont Population Alliance Survey" by Vince Bolduc and Herb Kessel. 2008 for Vermonters for a Sustainable Population report in progress.

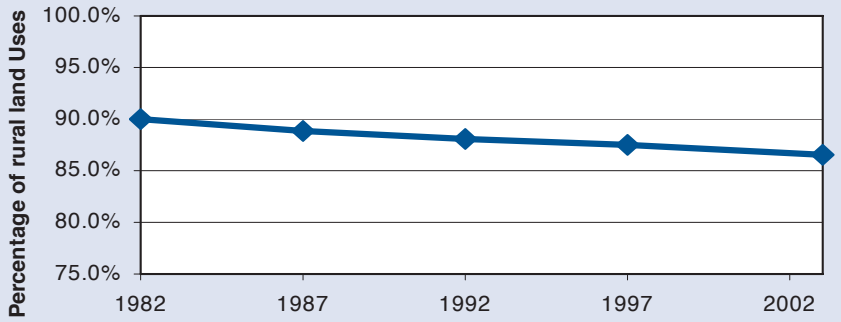
[5] Vermont Statutes Title 24, Chapter 117 (c) (1).

Trends in Land Use in Vermont

Trend number 1: *The area of rural land is declining, especially cropland and pastureland, while forestland is increasing. The rate of change in forestland has slowed in recent years and reforestation is geographically uneven.*

The National Resources Inventory (NRI) of the Natural Resources Conservation Service (NRCS) of the United States Department of Agriculture (USDA) provides one way to examine changes in land use. Most of the land in Vermont continues to be devoted for rural uses, but the following chart shows how this dominance has waned in recent decades. The decline in the number of Vermont dairy farms is largely responsible for this change (see Appendix, chart 3-1).

Changes in Land Dedicated to Rural Use In Vermont* 1982 to 2003



Source: NRCS National Resources Inventory
* Rural use include cropland, pastureland, rangeland, forests, conservation land, and other rural uses

While the decrease in the land used by dairy farms is significant, the change in harvested cropland has been more modest. This implies the loss of more marginal agricultural land, especially early in the period, and it coincides with significant gains in forestland in the state. For the period 1982-1997, agricultural land use decreased by 16% or 174,000 acres. Of this decrease, 81% reverted to forestland, while less than 15% moved into the developed land category.[6] Land converted from agricultural use to forest exceeded that converted to development by a factor of six. The decrease in agricultural land use coincides with significant changes in the organization of farming (See Chapter 6, Agriculture).

Growth in Vermont Forestland 1948 to 1997

Time Period	Increase (Acres)	Increase (%)	Average Annual Increase (Acres)	Average Annual Increase (%)
1948 – 1966	592,300	16%	32,906	0.89
1966 – 1973	171,700	4%	24,529	0.57
1973 – 1983	50,700	1.1%	5,070	0.11
1983 – 1997	63,900	1.4%	4,564	0.10

Source: U.S. Forest Service, Forests in the Green Mountain State: A Half Century of Change: http://www.fs.fed.us/ne/newtown_square/publications/brochures/pdfs/state_forests/vt_forest.pdf

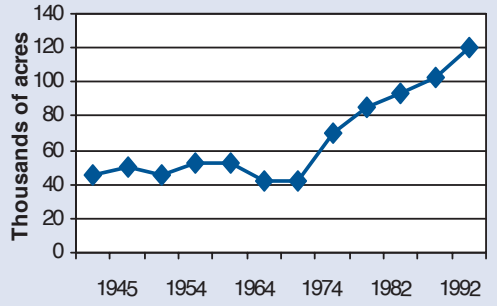
The most significant land cover in Vermont remains forests. More than three-quarters of the state's land is in forest, the third highest proportion in the nation.[7] Trends from several sources point to significant increases in forestland in the last fifty years, with growth slowing in more recent decades. The United States Forest Service Forest Inventory Analysis shows that since the end of World War II the forest area of the state grew almost 25% (see Appendix, Chart 3-2). The table shows how this growth differs over several time periods. Forest Service analyses see the reforesting of Vermont as a longer-term trend from its low-point of about 25% coverage in the late nineteenth century.

Changes in Vermont's forestlands are geographically uneven and are becoming more fragmented (see Chapter 7, Forestry). Since the last complete forest inventory conducted in 1997, the Forest Service reports that Chittenden and Addison counties have experienced moderate losses (greater than 5%) in forest area, while Orleans and Caledonia counties have experienced moderate growth.[8]

Trend number 2: The percentage of developed land in Vermont has continued to increase.

Vermont's non-rural land use has also changed; developed land uses have continued to take more of the state's land. The increase in developed land is a result of increased residential and commercial development and construction of second homes (especially related to the ski industry). In addition to broader economic and infrastructure constraints, the decisions by private landowners and state and municipal planners have each modified this trend towards more development. Land conversion from pastureland, cropland and forests has occurred. Data for the period from 1982 to 1997 reveal an increase of 74,800 acres of developed land. Of these, an estimated 31%, or 23,450 acres, came from agricultural land, whereas an estimated 68%, or nearly 51,000 acres, came from

Vermont Area of Urbanized Land 1945 to 2002



Source: USDA ERS Major Land Use Data

[6] Calculated from NRCS NRI estimates. These are based on a sampling procedure with margins of error. Ray Godfrey, NRCS Colchester office, has been of great assistance in clarifying data and providing additional interpretation. Margins of error are not reported here, but data for 2003 have higher margins of error than previous years.

[7] Forest Resources of the United States, 2002, "Table 1-Land area in the United States by major class, region, sub-region, and State, 2002." Smith, Miles, Vissage, and Pugh. U.S. Department of Agriculture, Forest Service. 2004.

[8] Lister, Andrew J.; DeGeus, Bob. 2003. The Forests of the Green Mountain State. Resource Bulletin NE-158. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station. P. 25.

forestland. The conversion of idle pastureland was more prevalent than active cropland.[9]

National Resources Inventory estimates reveal that developed land in Vermont, not including land in rural transportation uses, increased from 158,900 acres in 1982 to about 254,200 acres by 2003, a significant increase of 60% over two decades (see Appendix, 3-3). Development pressures have taken different forms in different regions of the state. Data from the USDA Major Land Uses study confirm that the more rapid growth in urban land uses began to occur around the late 1970s. These major changes stimulated the re-examination of land use planning in the state.

Trend number 3: *The rate and extension of land development has exceeded that of population growth resulting in pressure that spills over from urbanized areas into rural areas.*

Sprawl is a concept that is easier to define by a visual example than to define objectively. The Vermont Agency of Natural Resources (ANR) characterizes sprawl as "a form of low-density development that uses land in a wasteful manner, saps the vitality of traditional downtowns, encourages the use of automobiles, and occurs along highways and in the rural countryside."[10]

Several statewide polls have sought to understand how Vermonters feel about sprawl, and the results have not always presented a consistent picture. Since 1998, Smart Growth Vermont (formerly the Vermont Forum on Sprawl) has found that increasing numbers of the Vermont public recognize the concept; the proportions who have heard of "sprawl development" increased from 50% in 1998 to almost 80% 2005.[11] Two other statewide polls, conducted for Vermonters for Sustainable Population in 1998 and 2008, found that more Vermonters were concerned about sprawl than were not. However, the percentage who agreed with the statement "while suburban sprawl is seen as a problem in other parts of the country, it is not yet a problem in Vermont" increased from 29% to 41%.[12] In a 2002 survey conducted by the CRS, Vermonters were asked to identify the most serious issue facing Vermonters in this coming decade. "Urban sprawl and land use" was the third most frequently mentioned issue, just after "the economy" and "education."[13] In contrast, in the VBR's 2005 "Pulse of Vermont: Quality of Life" survey, "limiting sprawl" was rated the least important of the eight possible public priorities. While, it is not surprising that concern with limiting sprawl rated lower than such basic priorities as job creation, public safety, education, and clean air and water, it also ranked below "preserving scenic views," "maintaining access to recreational land," and "maintaining family farms."[14]

Perhaps inconsistencies in public perceptions of sprawl lie in the ambiguity of the concept itself. Is it about protecting small towns, urban centers, family farms, or land and environmental conservation? Is it opposition to 10 acre zoning per residence, strip development, or nodes of box stores found on the edge of an urban area? Until there is greater agreement on the meaning of the term, public opinion may appear inconsistent with poll results highly sensitive to the particular phrasing of questions and polling methods.

If sprawl is difficult to define, it is even more difficult to measure. Four different methods are explored below. The first way that sprawl could be documented is to compare the rate of change between population growth and land used for development.[15] From 1982 to 2003, the proportion of land that was classified as "developed" in Vermont increased by 60%, while population increased by only 19%. The chart below examines these differences in five-year intervals. The statewide trends are clear. From

[9] Based on NRCS NRI data.

[10] VT Agency of Natural Resources, Ecological Solutions, http://www.vteco.com/contntpg/sprawl.html

[11] Smart Growth Vermont, "What Vermonters Think," smartgowthvermont.org/learn/poll/

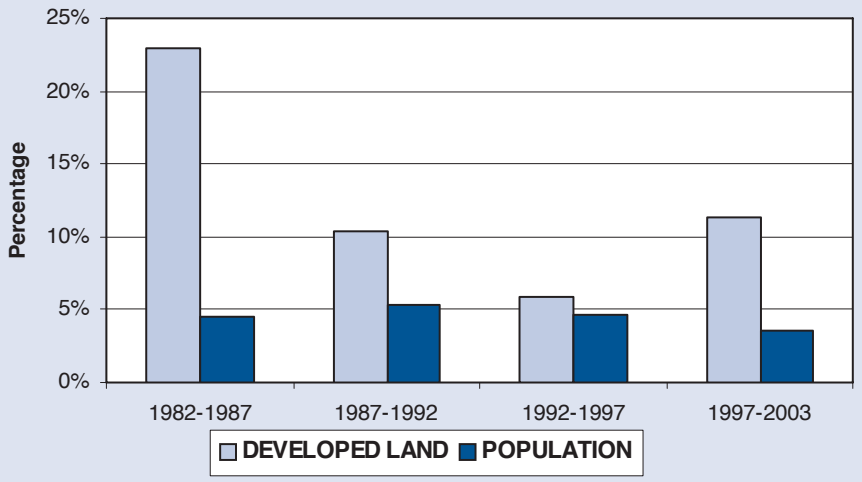
[12] Center for Social Science Research, Saint Michael's College, "1998 Vermont Population Alliance Survey" by Vince Bolduc and Herb Kessel. The 2008 report for Vermonters for a Sustainable Population is in progress.

[13] University of Vermont Center for Rural Studies, "The Vermonter Poll," http://crs.uvm.edu/vtpoll/

[14] Vermont Business Roundtable, "Pulse of Vermont: Quality of Life Study, 2005," by Vince Bolduc and Herb Kessel. Those who were most concerned with sprawl were more likely to have been born in other states, have higher education and income, and think of themselves as politically liberal. Surprisingly, residents of Chittenden County were no more likely to consider sprawl a major problem than were respondents in other areas of the state.

[15] Vermont Forum on Sprawl Exploring Sprawl factsheet available at http://www.smartgrowthvermont.org/.

Vermont Change in Developed Land and Population* 1982 to 2003



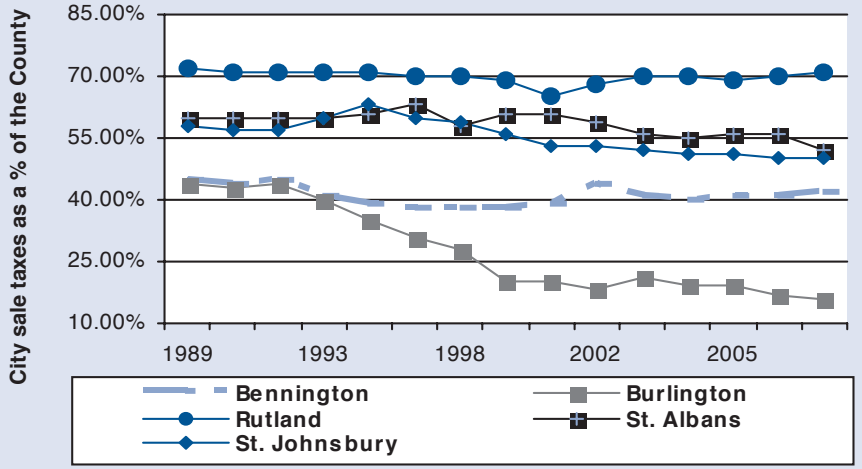
Source: NRCS NRI Data for Developed Land;
VT Dept of Health, 2002 and 2004 Vital Statistics for Population Data
* Developed Land does not include Rural Transportation

1982 to 2003, developed land grew at more than three times the rate of population. The pace of development was most significant in the early 1980s, with the most recent data period of 1997 to 2003, showing that developed land, although growing more slowly than in earlier years, still increased at more than three times the change in population. (See Appendix, Chart 3-4 for a similar analysis by size of developed land parcels) The impact of these trends varies from community to community, and may be barely visible if we only look at state level data.[16]

A second closely related measure of sprawl involves tracking development trends by comparing rates of population change with the growth in households and housing units. This approach shows that the growth in the number of households and the number of housing units outpaces population change.[17] In three of the four time periods displayed in chart 3-5 in the Appendix, increases in the number of households and housing units outpace the rate of change in population. While this trend could reflect the broader demographic shifts discussed in Chapter 1, it also suggests increased sprawl, because the rate of growth of separate housing units exceeds population growth. In concert with the increase in the developed land noted above, the implication is one of increased consumption of land for housing. One difficulty with this method is the assumption that new housing units are disproportionately built outside established urban, town and village centers. The fact that local and state policies have tried to resist this trend lends support to the sprawl implication of the trend.

Census data for urban and rural population change provides a third way of characterizing the nature of the increased development of land in rural areas. Rural population growth has outpaced growth in Vermont's urban areas, though population growth in both categories has significantly slowed in recent years. Some feel that the growth in urban land uses, coupled with rural population growth, is associated with sprawl (see Appendix, 3-6).[18]

Change in Sales Tax Revenues from Selected Cities: Percent of County Tax Revenues (Selected Years) 1989 to 2007



Source: Based on analysis of data provided by Vermont Department of Taxes

[16] The NRI offers county-scale development data for 1982-1997. An early example of this finer scale analysis is the Exploring Sprawl Fact Sheet noted above.

[17] For an example of this as an indirect measure of sprawl see (A Planning Tool for Conservationists: Spatial Modeling of Past and Future Land Use in Vermont Towns) developed by the Spatial Analysis Lab at the University of Vermont. http://www.uvm.edu/envnr/sal/lumodel/stateof.html

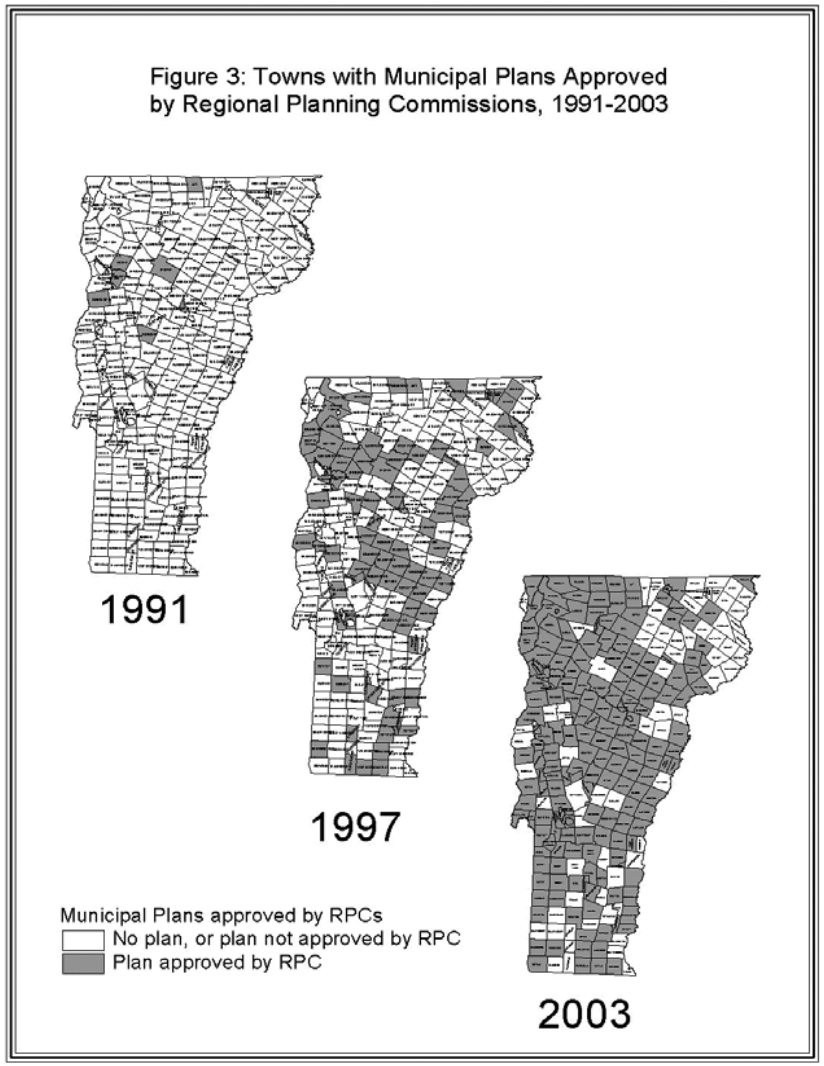
[18] Differential population growth has been linked to sprawl by the Vermont Earth Institute. See "Vermonters and Sprawl" at http://www.vtearthinstitute.org/sprawl.html

A fourth method of identifying sprawl is to track the movement of retail trade from downtowns to locations outside the city limits. The strength of this approach is the availability of data on tax receipts for each community in the state, but the fact that tax exemptions change complicates the analysis.[19] Sales tax revenues from a sample of seven Vermont cities are compared with county tax revenues from 1989 to 2007. The previous chart shows a clear pattern of declining sales tax revenues for the City of Burlington, while sales tax revenues in the same time period increased for the surrounding suburban shopping centers. The other four cities show either modest declines or stability by comparison. To save room on the chart, data from Montpelier and Barre are not included, but sales taxes from each city as a percentage of Washington County have remained largely constant throughout the last decade (Montpelier at 18% and Barre at 32%).

Trend number 4: *In the past three decades, the content and scope of formally adopted land use and development planning has significantly increased. External evaluations of land use change and related policy have also increased.*

The changes in land use have had a notable impact on the landscape in many areas of the state. During the times of the most rapid changes in land use, many Vermonters worked on state, regional and local levels to exercise some influence over the pace and direction of change. Both public agencies and private organizations have worked to monitor and influence land use change.[20] Efforts to manage development and protect both agricultural and forestland have evolved considerably over the past three decades. As a result, Vermont is known for having some of the most comprehensive land use planning laws in the country, as well for developing an active and successful set of land conservation organizations.

Land use planning has existed in a few Vermont towns since the early 1920s. The number of plans increased substantially with the passage



Source: Vermont Department of Housing and Community Affairs (2004) "Status Report: 15 years After Act 200" p.20. Map used with Permission. Available at http://www.dhca.state.vt.us/Planning/NewResources.htm

[19] If Burlington, for example, has many clothing stores, and they become exempt during the period of the study, tax revenues will decline, but these declines will have nothing to due with firms leaving the city for the suburbs. Other caveats include: data for Rutland City and Rutland Town and St. Albans City and Town are combined in each case. Data excludes revenue from use taxes. Also, businesses that have different mailing addresses than their place of business make it more difficult to identify the appropriate source or location of the tax revenues.

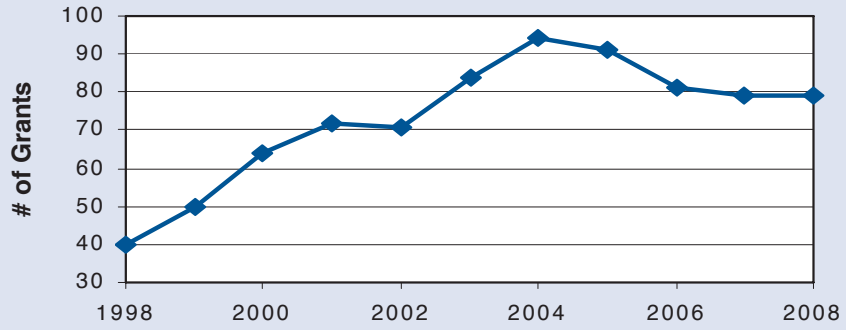
[20] The Vermont Smart Growth Collaborative assessed the impact of State agency priorities and spending for 1991-2003 in a comprehensive report and last year published an update for 2003-2006. These reports provide detailed assessments of the impact of policies related to infrastructure, transportation and economic development. See http://www.smartgrowth.org

of State enabling legislation in the 1960s.[21] Town plans have always varied in quality, and many were simply adaptations of plans from nearby towns. The most significant developments in Vermont's land use planning were the passage of planning legislation known as Act 250 in 1970 and Act 200 in 1988, but there have been many other legislative changes as well.[22] Act 250 put into place a permitting system driven by analyses of the developmental impacts using a set of criteria and sub-criteria as guidance. Act 250 required the development of two state level plans—the Development and Capability Plan and the State Land Use Plan.[23]

The goal of Act 200, also known as the Growth Management Act, was to improve planning effectiveness and coordination as well as to provide a comprehensive view of planning at different geographic scales. The interplay between Act 250 and Act 200 is a key component of the planning environment in Vermont. The review of local plans, or indeed the implementation of local planning itself, was not without controversy.[24] However, 196 towns now have municipal plans approved by regional planning commissions.[25]

Act 200 provides funding for local planning studies through grants from the State's Housing and Community Development Agency. While budgetary support has been uneven, these grants have continued. The graph below shows the recent trend in numbers of grants. In the past decade, the agency has disbursed more than seven million dollars in planning grants. Land use change is shaped by these regulatory and incentive-driven practices in complex ways. The coordination of land use planning by different agencies remains a challenge.[26]

State of Vermont Municipal Planning Grants 1998 to 2008



Source: Vermont Department of Housing and Community Affairs, Annual Reports

Trend number 5: Participation in the Use Value Appraisal Program has increased significantly.

Vermont is one of a large group of states with a preferential tax system designed to influence land use. The Use Value Appraisal Law of 1978 taxes farm and forestland based on its "current use" instead of based on its potential value for development. The goals of the Act were ambitious: 1) keep Vermont agricultural and forestland in production; 2) help slow the development of these lands; and 3) achieve greater equity in property taxation on undeveloped land. Since its inception, the program has undergone several changes that have altered the conditions for entry into the program, the basis of the tax incentives, and exit penalties.[27] The Vermont Tax Department estimated that in

[21] Status Report: 15 years After Act 200 ("Status Report") provides clear context for the adoption of municipal comprehensive plans, often a pre-requisite for the release of Federal funds for public facilities/infrastructure. http://www.dhca.state.vt.us/Planning/NewResources.htm

[22] Vermont has added a sequence of laws that influence land use change and the geography of development. These include the Development Cabinet Law (2000), the Vermont Housing and Conservation Fund (1987), the Vermont Downtown Program (1998), and the Village Centers and New Town Centers Programs (2002). Liability limitations and clean-up programs through the Vermont Department of Environmental Conservation Brownfields Program facilitate redevelopment of environmentally contaminated sites.

[23] The requirement for development of a State Land Use Plan was rescinded in 1983.

[24] Town meeting items "not to adopt an Act 200 Plan" appeared on the warrant of 131 towns in 1990. ("Status Report" p.23)

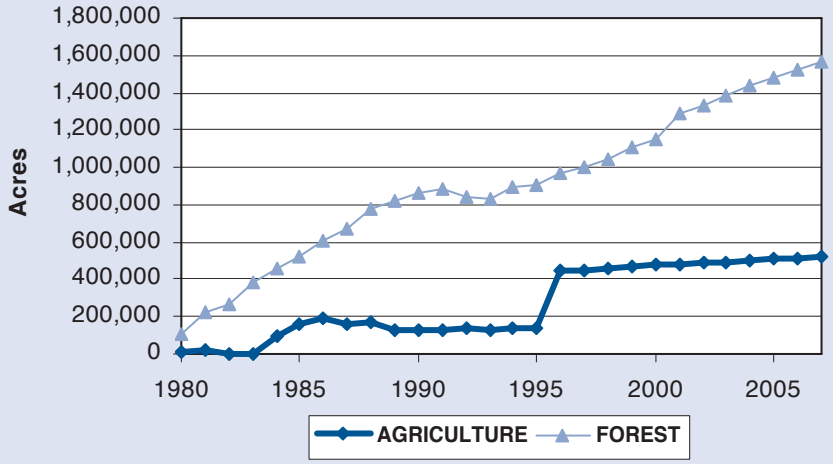
[25] Confirmation by Planning Agency Director Joss Besse, 11/14/2008.

[26] A report "Planning for Vermont's Future" produced by the VT Council on Rural Development contains a useful explanation of the planning infrastructure. See http://www.vtrural.org/files/summit_final_report_2004.pdf. With specific reference to sprawl, the Vermont Smart Growth Reports of the Smart Growth Collaborative provide assessments of the investment decisions and policies of a full array of state agencies (see Footnote 22 above).

[27] As this study is being prepared, the Vermont Legislature is considering expanding the eligibility criteria for participation in the Use Value Program to include ecologically sensitive forestland that would be left undisturbed.

2007, 59% of the eligible agricultural land and 40% of the eligible forestland were enrolled in the program (accounting for more than a third of the total land area of the state). This includes almost 12,000 landowners and close to 15,000 parcels of land.[28] The trend in enrollment in farm and forest programs is shown below.[29]

Vermont Land in Agricultural and Forest Use Value Appraisal Program 1980 to 2007



Source: Vermont Department of Taxes: 2007 Use Value Appraisal Program Summary

Trend number 6: Public and private efforts to permanently conserve Vermont land have increased significantly.

The 1999 conservation agreement between Champion International Inc., and federal, state, and private entities was one of the most dramatic land transfers in Vermont history, affecting the ownership and long-term conservation of more almost 133,000 acres of timberland. But there have been a wide range of similar, if smaller, conservation agreements in Vermont in the last few decades. Many of these transfers have involved partnerships between the State of Vermont, federal agencies, non-profit organizations (especially land trusts) and individual landowners. By 2004, according to reports from the University of Vermont Spatial Analysis Laboratory, there were almost 1.3 million acres of conserved land in the state.[30] This is an increase of 12% over the past four years and it includes more than 400,000 acres of privately conserved land.

Through leveraging, the Vermont Housing and Conservation Board (VHCB) reported that its funds had lead to almost a billion dollars in conservation funding. Specifically, during the past 20 years, $200 million of VHCB investment has allowed non-profit organizations, towns, municipalities and state agencies to gain an additional $750 million from federal programs, foundations, private capital and charitable donations. In this time, Board funds have conserved 451 farms and 121,428 acres of agricultural land as well as 250,000 acres conserved for public recreation and natural areas.[31] The Vermont Agency of Natural Resources also holds conservation easements on roughly 120,000 acres in the state.

The purchase of development rights is a key step in many of these conservation efforts. Private landowners, negotiating with an agency or organization, receive one-time or phased payments as compensation for agreeing not to use their land for certain forms of development. Conservation easements are perpetual and are used to keep land in agriculture, forestry, open space, or wildlife preserves.

Vermont's non-profit land trusts often work with State and federal land use agencies. Since founding its Vermont chapter in 1960, the Nature

[28] "Vermont Department of Taxes: 2007 Use Value Appraisal Program Summary." Entry to one of the programs often accompanies the sale of development rights to one of Vermont's land conservation organizations.

[29] "Farmland" and "Working Farm Tax Abatement" programs in the late 1980s and early 1990s were consolidated in tax year 1996, with landowners eligible to transfer into the consolidated program. The discontinuation of these programs accounts for a significant increase in acreage in 1996. For the trend in participation for all programs since 1980, see Chart 3-7 in the Appendix.

[30] This includes federal, state, local agencies as well as non-profits. Due to the number and complexity of partnerships, there is a risk of some double counting when reporting the conservation efforts of individual organizations. Data confirmed by Sean MacFaden, UVM Spatial Analysis Lab.

[31] Funding for the VHCB comes from a portion of the state's property transfer tax. VHCB also received some funding as a result of mitigation actions required in some Act 250 permit cases where prime agricultural land is consumed for development. In a 2003 report on offsite mitigation, VHCB and the Vermont Department of Agriculture, Food and Markets reported the loss of 634 acres of agricultural land being offset by more than 5,000 acres of permanently conserved land. Mitigation funds leveraged Federal monies from the Farmland Protection Program.

Conservancy, a private non-profit organization, has conserved 170,000 acres in the state.[32] The organization gives much of the land it conserves to State and local agencies. In its current preserve guide, the Nature Conservancy reported direct ownership of almost 17,000 acres as well as holding conservation easements on an added 3,000 plus acres.[33] A second conservation organization, the Vermont Land Trust recently celebrated 30 years of activity. In its first 15 years, the land trust reported conservation of some 50,000 acres or roughly one percent of Vermont's undeveloped land. In the second half of its existence, the organization's efforts expanded with significant funding from private foundations as well as partnerships with the Vermont Housing and Conservation Board and other organizations. By 2007, they reported dramatic conservation achievements in 1,417 projects that have led to conserving 470,150 acres or 8% of the state's private undeveloped land. This included purchases and donations of conservation easements for most of the conserved land (almost 350,000 acres).[34]

While the Vermont Land Trust and the Nature Conservancy are the best-known land conservation non-profit organizations, there are many other land trusts in the state. In fact, the Land Trust Alliance Census of Land Trusts reports an increase of ten land trusts between 2000 and 2005. Over that time, the total amount of land conserved by such trusts increased by 131,963 acres, an increase of thirty percent. Many local towns in Vermont also maintain open space funds to conserve land through direct purchases or leverage local funds with funding from other groups to carry out the same objective.

In sum, six trends can be identified in the areas of land use and planning:

1. The area of rural land is declining, especially cropland and pastureland, while forestland is increasing. The rate of change in forestland has slowed in recent years and reforestation is geographically uneven.
2. The percentage of developed land in Vermont has continued to increase.
3. The rate and extension of land development has exceeded that of population growth, resulting in sprawling land usage that spills over from urbanized areas into rural areas.
4. In the past three decades, the content and scope of formally adopted land use and development planning has significantly increased. External evaluations of land use change and related policy has also increased.
5. Participation in the Use Value Appraisal Program has increased significantly.
6. Public and private efforts to permanently conserve Vermont land have increased significantly.

For the appendices and for pdf versions of this report, please visit the Council on the Future of Vermont's website: www.futureofvermont.org or visit Vermont Council on Rural Development at www.vtrural.org.

The Appendix for this chapter contains the following charts:

1. Acres of Vermont Cropland and Pastureland, 1982 to 2003
2. Vermont Forest, Thousands of Acres 1920 to 2007
3. Changes in Developed Land in Vermont, 1982 to 2003
4. Vermont Change in Developed Land and Population, 1982 to 1997
5. Percent Changes in Vermont's Population, Households, and Housing Units, 1970 to 2006
6. Urban and Rural Population Change 1950 to 2000
7. Vermont's Use Value Appraisal Program Participation, 1987 to 2007

[32] Vermont Chapter of Nature Conservancy, Summer 2008 report. Available at http://www.nature.org/wherewework/northamerica/states/vermont/

[33] Preserve Guide of the Vermont Chapter of the Nature Conservancy. Available at: http://www.nature.org/wherewework/northamerica/states/vermont/files/pub_04_preserve_guide.pdf

[34] Vermont Land Trust Reports available at http://www.vlt.org. The most recent report for 2007-2008 is available at http://www.vlt.org/AR0708-work.pdf.

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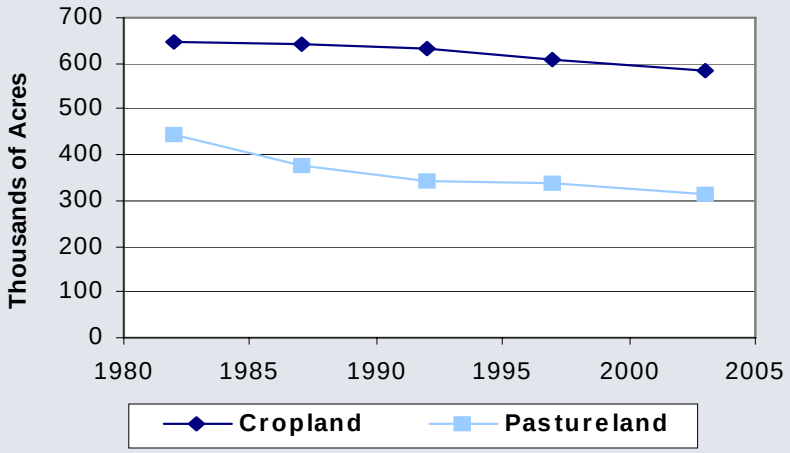
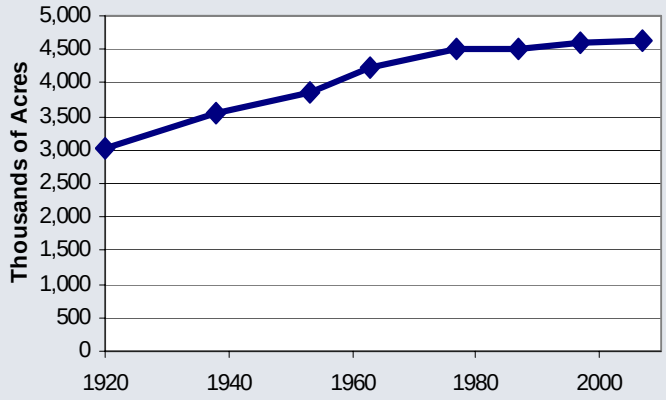
Chart 3-1
Acres of Vermont Cropland and Pastureland
In thousands of acres
1982 to 2003



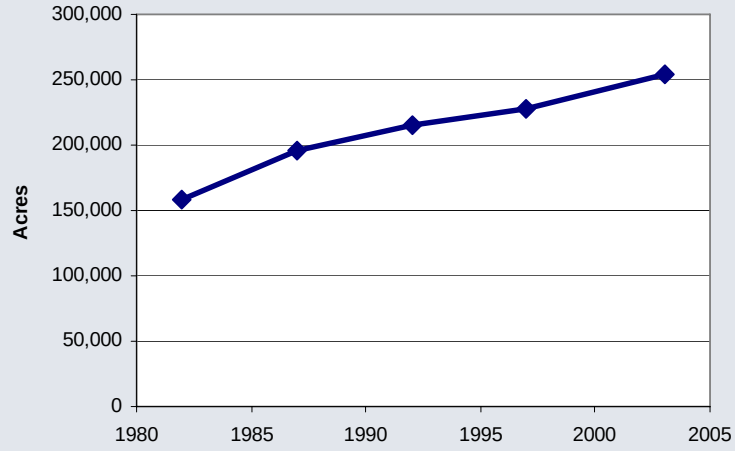
Source: NRCS National Resources Inventory.

Chart 3-2
Vermont Forests In Thousands of Acres
1920 to 2007



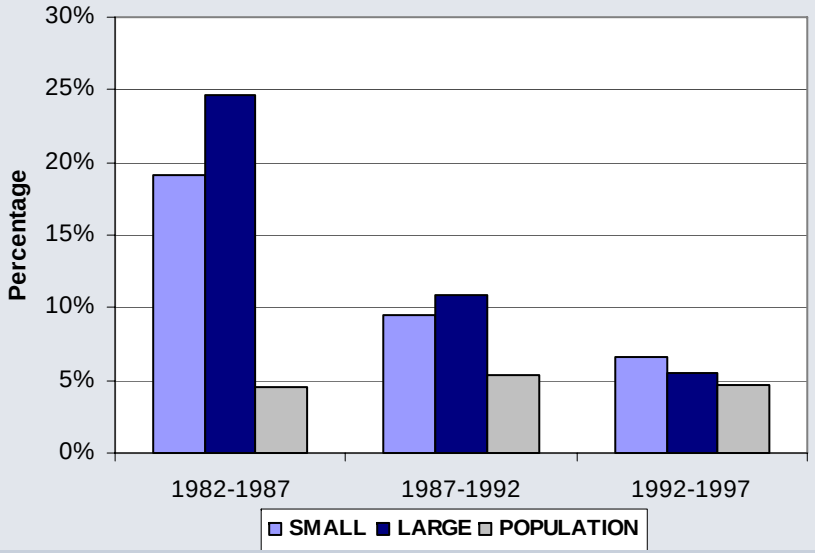
Source: U.S. Forest Service, Forests in the Green Mountain State: *A Half Century of Change for (1948 – 1997)*

Chart 3-3: Changes in the Amount of Developed Land in Vermont In acres, 1982 to 2003



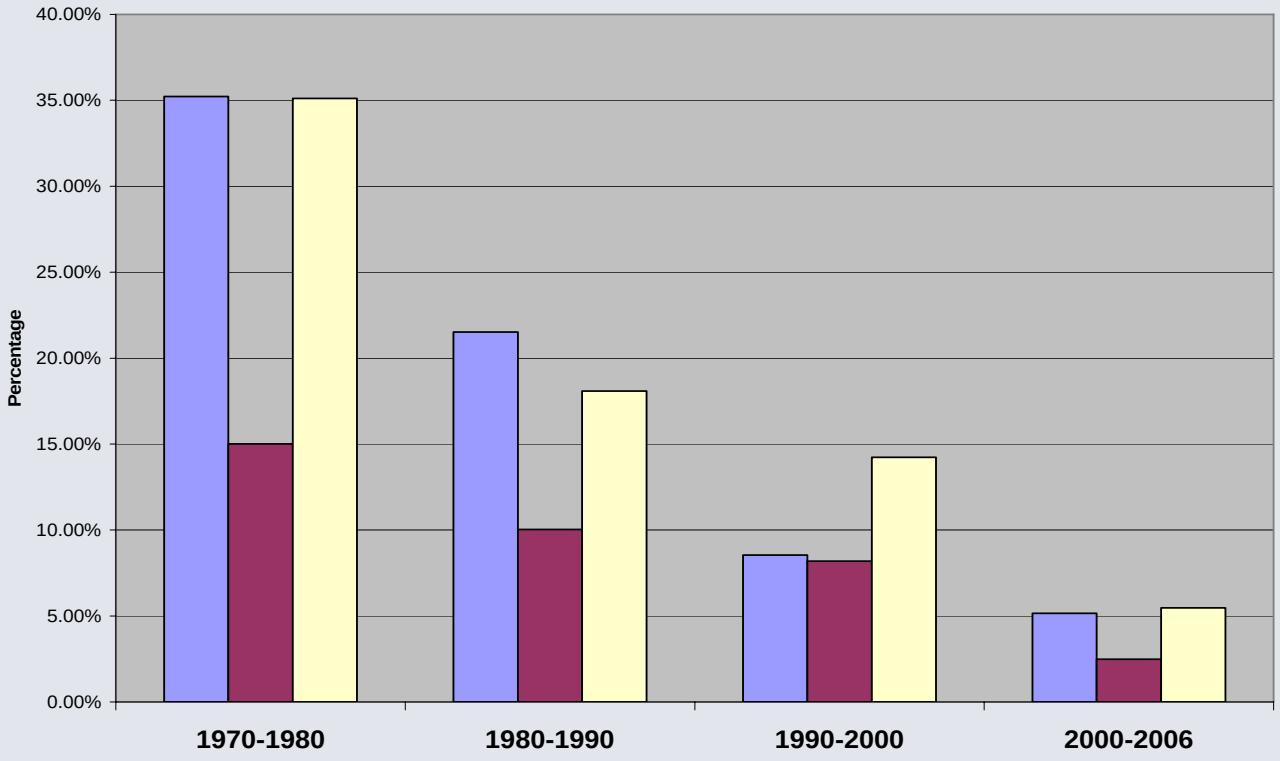
Source: NRCS National Resources Inventory

Chart 3-4
Change in Developed Land and Population*
Vermont, 1982 to 1997



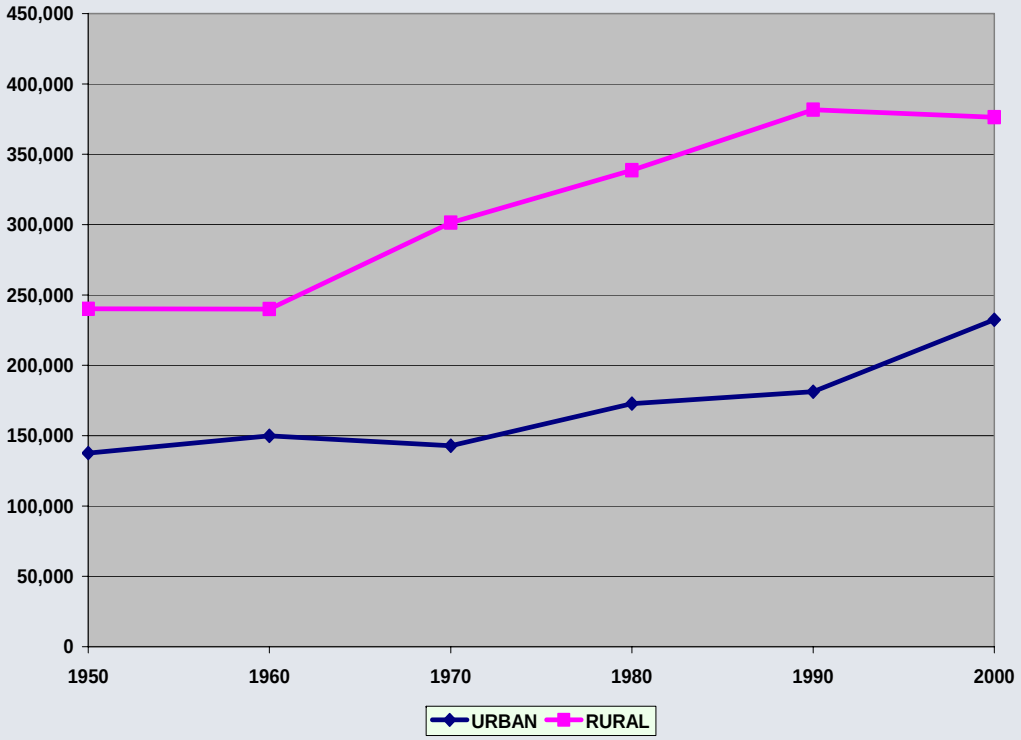
Source: NRCS NRI Data for Developed Land; VT Dept of Health, 2002 and 2004 Vital Statistics for Population Data

Chart 3-5
Percent Changes in Vermont's Population, Households, and Housing Units
1970 to 2006



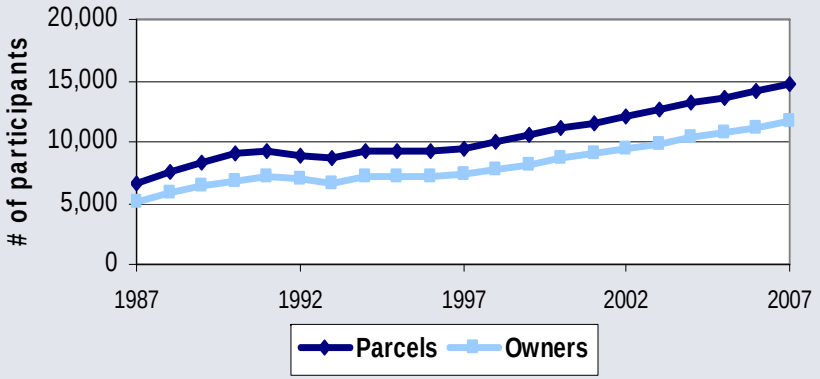
Source: Data from U.S. Census via Center For Rural Studies, University of Vermont.

Chart 3-6
Urban and Rural Population Change
1950 to 2000*



Source: Data from U.S. Census Bureau
* Method for calculating urban population for 2000 was modified

Chart 3-7
Vermont's Use Value Appraisal Program Participation
1987 to 2007



Source: Vermont Department of Taxes, 2007 Land Use Appraisal Program Summary