

MEETING OF THE PLANNING BOARD OF THE TOWN OF HANOVER

Public Workshop on the Preservation of Rural Resource Lands

January 15th, 2008

SUMMARY

In May 2007 the Hanover Planning Board launched a Rural Study Group, comprised primarily of volunteers from the Town, charged with developing recommendations for the protection of valuable land resources in rural Hanover identified in the Town Master Plan of 2003. The Rural Study Group has made preliminary recommendations to the Planning Board. It also recommended that the Planning Board convene a workshop, open to all Hanover residents, to inform town's people of the work of the Rural Study Group, and to solicit their views and suggestions prior to the Study Group making its final recommendations. The Planning Board has scheduled a public workshop to be held at 7:00 PM on January 15th, 2008 at Trumbull Hall, Etna.

The purpose of this document is to provide participants with background information on attitudes toward land conservation, the benefits accruing from the conservation of certain rural land types, and the mechanisms by which valuable land resources may be protected even as development proceeds in the rural area.

INTRODUCTION

In 2003, the Town of Hanover adopted its Master Plan for the guidance of land use strategies and the management of future growth in ways that will preserve and enhance the essential elements of the community. The Planning Board developed a set of "Core Principles" that include, among others¹, that as a community we must:

- Protect and preserve our natural resources;
- Respect, protect and strengthen the distinctive qualities of the urban and rural parts of Hanover;
- Actively manage future growth.

The Master Plan of 2003 states:

¹ Hanover Master Plan 2003, Chapter 1. Other "Core Principles" address affordable and diverse housing and development; outdoor recreation; reliance on automobile transportation; and preservation of a balance between community and campus.

"If Hanover is to protect its natural resources and provide a high quality of life for its citizens, the capability of Hanover's natural resources to accommodate development must be respected. The recommendations of this plan are based on the premise that Hanover's natural heritage should be preserved and future development of the Town be guided by the ability of the land to support development."²

Many surveys since 1976, including the 1999 *Guiding Growth in Rural Hanover* project, have consistently shown the desire of Town residents to preserve Hanover's rural character. Guidance toward achieving these goals has been given in the 1998 report from the Scenic Locales Committee, and in the *Open Spaces Priorities Plan* adopted in 2000. Nonetheless, it is widely recognized among the citizens of the Town and specifically noted in the Master Plan of 2003 that pressures for further residential development in the town will increase in future years. The Master Plan recommends that the equilibrium between a "thriving, attractive denser urban portion of the town" and a "rural area designed to fit the capabilities of the land and visually arranged to retain its rural character" be maintained³ and that the current proportion of the population living in the rural area to the area served by water and sewer of 1:3 be maintained⁴. Land use guidelines may be employed to protect natural resources and encourage appropriate development patterns that:

"Preserve and respect the rural character of Hanover that include quiet, privacy, dark night sky, a mixture of woods and fields, wildlife, scenic views, including uncluttered views of the hilltops and ridgelines, natural areas and other places for outdoor activities."⁵

Following discussion at the meeting of the Hanover Planning Board on May 15th, 2007, the formation of a Rural Study Group was initiated⁶ with the following charge:

"The Rural Study Committee is generally charged by the Planning Board to focus on the natural resource underpinnings of future land use and regulation in rural Hanover within the context of the 2003 Master Plan ..."

The study area was defined as:

² Hanover Master Plan, Chapter 4, p 1

³ Hanover Master Plan 2003, Chapter 3, p5

⁴ Hanover Master Plan 2003, Chapter 3, p13

⁵ Hanover Master Plan, Chapter 3, p13

⁶ The Planning Board has also formed a Wetlands Committee to separately recommend approaches to the preservation of wetlands and related natural resources

“Current Rural Residence (RR) and Forestry and Recreation (F) zoning districts; being cognizant of edges of these areas bordering other zoning districts, particularly the single Residence (SR-2) zoning district along Etna and Greensboro Roads.”

The following issues were identified in the Scope of Work for study:

1. *Protection of lands of high resource value*
2. *Protection of lands of moderate resource value*
3. *Consideration of results of Wetlands Committee*
4. *Competing natural resource interests on the same parcel and across the study area*
5. *Land uses/activities/access to encourage, to discourage, and to prohibit*
6. *Administrative/documentation/process costs/feasibility/time for town and applicants*

OPERATION OF THE RURAL STUDY GROUP

A public meeting was held at Trumbull Hall, Etna on May 30th, 2007 to outline the issues and to launch the formation of a Rural Study Group. The Group has been open to all interested residents of the Town of Hanover and has met on a regular basis throughout the summer and autumn. Announcements and agendas for upcoming meetings have been distributed to all who have requested them, as have meeting minutes and Study Group materials. The Rural Study Group has presented interim reports on its deliberations and preliminary recommendations at meetings of the Planning Board in November and December 2007. Principal contributors to the Group, including members of Town Boards and staff of the Town Planning and Zoning Department who have provided support and suggestions, are shown in Table 1. The Rural Study Group also acknowledges the contributions of many other residents of the Town who have participated as their time and other commitments permitted.

Table 1. Principal Contributors and Advisors

Dave Cioffi	Ruth Lappin – ZBA
Nancy Cole	Tom Linell
Nancy Collier – Planning Board	Anne Morris
Kate Connolly – Select Board/Planning Board	Joyce Noll
Bill Dietrich - Planning Board	Hilary Pridgen
Jonathan Edwards – Planning Dept	Iain Sim - Chair
Michael Hingston – Planning Board	Vicki Smith - Planning Dept
Bob Keene	

BACKGROUND TO THE WORK OF THE RURAL STUDY GROUP

The importance of preserving natural resources has been articulated in many ways:

“One of the primary issues New Hampshire faces is how to protect our unique natural resources during a period of significant population growth.”⁷

Judd Gregg, US Senator

“The recommendations of this plan are based on the premise that Hanover’s natural heritage should be preserved and future development of the Town be guided by the ability of the land to support that development.”⁸

Hanover Master Plan 2003

“A landowner should be a wise steward of our limited natural resources thereby maintaining and/or improving the quality of life of the community. This stewardship involves preservation of the ecology of the land and preservation of features which are a community benefit. This social responsibility for wise stewardship is no longer appropriate to ignore.”⁹

Elaine Bent, Resident

The Master Plan 2003 recognizes the following as the major categories of rural resources worthy of conservation: water resources, soils, forest resources, flora, wildlife, and scenic resources.¹⁰ The Master Plan identifies environmentally sensitive lands and categorizes them. Those of high resource value are:

- Floodplains;
- Wetlands (including hydric soils);
- Headwaters of major streams;
- Perennial stream courses and adjacent natural buffers;
- Steep slopes.

Lands of moderate resource value are:

- Important agricultural soils;
- Moderate slopes;
- Aquifers;

⁷ Upper Valley Land Trust Annual Report, 2006-2007

⁸ Hanover Master Plan 2003, Chapter 4, p1

⁹ Elaine Bent, personal communication to the Chairman of the Rural Study Group

¹⁰ Town Of Hanover Master Plan 2003, Chapter 4

- Hilltops and ridgelines;
- Significant identified wildlife habitats and corridors;
- Areas of identified biodiversity.

The Master Plan recommends specifically that environmentally sensitive lands of high resource value be excluded from development while development on lands of moderate resource value be subject to stringent review. The Rural Study Group has focused initially on three environmental resources that can be readily described and their location determined for more detailed analysis:

- Steep slopes (high resource value)
- Important agricultural soils (moderate resource value)
- Hilltops and ridgelines (moderate resource value)

The importance of each of these three resources to the rural character of Hanover, and the underlying rationales for their preservation are described in more detail in the sections that follow.

STEEP SLOPES AND THE PRESERVATION OF WATER QUALITY

Definition and Importance of Steep Slopes

Steep slopes are widely defined as slopes whose grade is equal to or exceeds 25%. This minimum value is used the in Master Plan 2003 to map slopes¹¹, is currently used in the Town Zoning Ordinance (section 207.2) and is employed by the New Hampshire Department of Environmental Services¹². The Master Plan 2003 specifically recommends excluding development from steep slopes.

The principal reason for the preservation of steep slopes is for the protection of water resources. Steep slopes are frequently covered by thin, fragile soils which are held in place by the extant vegetative growth. Removal of vegetation and land disturbance on steep slopes can lead to erosion of soil and sedimentation in streams and wetlands with consequent degradation of water quality. Tree cover remains the optimal vegetation for protecting steep slopes and downhill wetlands and water bodies from erosion and degradation. The exposure of underlying hard rock surfaces can also result in faster water runoff that in turn allows less infiltration into the ground and recharge of aquifers; residents of Hanover's RR and F zones rely completely on ground water extracted from private wells for their water supply. Meteorological data gathered between 1948 and 2006 shows that New Hampshire has experienced an 83% increase in storms with extreme precipitation in that period; scientists expect global warming to further increase

¹¹ Hanover Master Plan 2003, Chapter 4, Map 4-3

¹² Innovative Land Use Techniques: A handbook for sustainable development. Draft, 2007

the frequency of heavy precipitation¹³. The taxpayers of Hanover are only too aware of the erosive power of heavy precipitation, and of its consequent financial impact, as evidenced by the storm that hit part of the Town on June 10th, 2005.

Using the generally accepted definition of a steep slope as stated above, U.S. Geological Survey topographical data has been used to map the significant areas of steep slope in the Town. Using a 20-foot contour interval for mapping purposes provides a reasonable degree of granularity without identifying relatively minor, small areas of slope.

AGRICULTURAL LAND AND FUTURE FOOD PRODUCTION

Definition of Agricultural Soils

Physical properties of soils are analyzed, described and generally mapped according to a nation-wide system by the U.S. Department of Agriculture's Natural Resources Conservation Service. Each kind of soil is then analyzed for its suitability for a wide variety of defined uses, including agriculture. The information, published on a county-by-county basis, is available for Hanover in "Soil Survey of Grafton County Area, New Hampshire."

"Soils form through the interaction of five major factors: time, climate, relief, parent material [the unconsolidated organic and mineral material in which soil forms], and biological forces. The relative influence of each of the factors determines the kind of soil...In this survey area [Grafton County] the more significant factors of formation are relief and parent material. These two factors vary widely within the area."¹⁴

The Soil Survey of Grafton County divides its Important Farmland Soils into categories: "prime farmland," those of "statewide importance," and those of "local importance." Prime farmland soils were formerly called soils of "national importance". Important Farmland Soils are "best suited to food, feed, forage, fiber and oilseed crops. [They] may be cultivated land, pasture, woodland, or other land, but [they are] not urban and built-up land or water areas."¹⁵ The Hanover Master Plan 2003 estimates that the town has about 5,900 acres of Important Farmland Soils within its 49 square miles. Pockets of these soils are scattered throughout the area west of Moose Mountain. The largest expanse of prime farmland soil – approximately 487 acres – lies in the Water Company land surrounding the first and second reservoirs.

¹³ When it Rains, it Pours: Global Warming and the Rising Frequency of Extreme Precipitation in the United States, Environment New Hampshire, 2007

¹⁴ Soil Survey of Grafton County, p257

¹⁵ Soil Survey of Grafton County, p. 205

Soils typically take thousands of years to develop. A vertical slice from the surface down to the solid bedrock below will pass through topsoil with the most organic matter and thus the most fertility, a layer of subsoil, then the materials from which the mineral particles derive. The farmer is primarily dependant on the properties of the topsoil, while the engineer is concerned with the deeper layers. Thus, when development takes place on soils suitable for agriculture, the topsoil is either removed or mixed in with the less suitable materials, and rendered no longer of agricultural quality. Important Farmland Soils used to underlie much of Hanover's in-town and Route 10 urban (built-up) areas, but can no longer be so classified.

The Future for Farming and the Protection of Hanover's Agricultural Soils

Hanover's succession of three formal Master Plans (1975, 1986, 2003) was preceded by "Hanover Plans Ahead: A Report to The Citizens of Hanover, New Hampshire," a federal, state and locally funded consultants' plan (1957). All have consistently recommended the protection of important agricultural soils, as follows:

1957 Planning Policies:... "To protect and enhance the natural resources of the Town for their best use for agriculture, forestry, and recreation" (p. 3)

"In between this reserve [the current F zone] and the relatively small part of the Town proposed for "urban" development lies another big area which is proposed in the plan for continuation of its present kinds of uses – largely woodland, some farming, some recreational use, watershed reservation and some scattered residence..." (p. 23)

1975 "Land particularly well-suited for agricultural use should be identified and protected by regulations which encourage such use, such as current-use assessments, zoning, gifts, or purchase of development rights." (p. 9)

1986 "Goals for Hanover's Open Space Lands:..."To preserve agricultural and forest lands and encourage their sound management" (p. IX-12)

Summary:..."There is strong support in town for...preserving agricultural land." (p. IX-13)

"Hanover's only large undeveloped parcel of nationally important agricultural soil around the Reservoirs and other areas of nationally important soils should be protected from development that would destroy their usefulness in growing crops in the future." (p. XII-24)

2003 "Hanover is unique among the towns along the Connecticut River in its scarcity of prime farmland in the River Valley. This is partly due to the

flooding that has occurred with water backed up by Wilder Dam. Since Hanover has few remaining areas of good undeveloped farmland, these areas should be protected from development that would destroy their usefulness in growing crops in the future." (page XI-5)

"Fresh food, locally produced, helps to reduce our reliance on agribusiness and to avoid the huge transportation and subsidized water costs, and gives us some measure of food security." (chapter 4, p. 7)

"Protecting agricultural soils protects community options. Agriculture is a suitable use of agricultural soils; buildings are not." (chapter 4, p. 7)

The past few years has witnessed a growth in the desire of families to obtain more of their fresh food from local sources. The Hanover Food Coop, for example, now offers its patrons produce from 15 local and regional farms and orchards. More than 80 varieties of organic fruits and vegetables, more than 90 varieties of conventional produce and over 40 varieties of apples are offered, which send \$400,000 a year back into the agricultural community from one business alone. In addition, local and regional dairy products and meat are sold in significant quantities but for which figures are currently not available. Dartmouth Dining Services currently spends \$250,000 annually on regional food sources. Vital Communities, a non-profit organization in White River Junction, are flourishing. Vital Communities encourages the use of local food supplies, "fostering the relationships that make agriculture a vital part of daily community life in the Upper Connecticut River Valley of Vermont and New Hampshire." It lists 35 regional restaurants that depend on regional food produce.

The agricultural landscape was the dominating feature of Hanover's past, and an important element of the popularly expressed desire for maintenance of "rural character." Hanover currently has at least 10 working farms supporting cattle, sheep, llamas, and horses, and producing eggs, hay, maple syrup, organic vegetables, specimen trees, and flowering plants. Home gardening, often on a substantial scale, takes place throughout the RR and F zones. The Hanover Water Company land, Hanover's largest area of agricultural soils of national importance was once the location of several significant farms that were subsequently abandoned in the first decade of the 20th century in favor of developing the water supply. This land may never again become available for agriculture, making the remaining agricultural land that much more valuable for potential community food production.

The decline in the number of farms in New Hampshire has already been reversed. According to recently retired NH Commissioner of Agriculture, Steve Taylor, the number of farms in the state as a whole has increased approximately 11% from 2886 in 1982 to 3200 today, and continues to rise as small scale

“niche farming” develops to satisfy growing public desire for locally grown food.¹⁶ As the cost of transportation fuel increases, the economics of shipping food over long distances from producer to consumer will deteriorate while the financial viability of producing food locally will increase. Agricultural land will become an increasingly important community asset.

Finally, a benefit of agricultural land that is often under-appreciated is its contribution to the maintenance of the water supply to the area. As noted above, residents of Hanover’s RR and F zones rely completely on private wells for their water supply. Agricultural lands, whether forested, tilled, grazed or vacant, allow for significantly greater infiltration of precipitation for the recharge of ground water supplies than does land developed for housing or compacted soils such as lawns and playing fields.

RIDGELINES AND HILTOPS DEFINING THE RURAL CHARACTER OF HANOVER

The Importance of Ridgelines and Hilltops to Hanover

Ridgelines and hilltops have been identified both in past and current Master Plans and in the report from the Scenic Locales Committee as resources that warrant preservation; the principal value of ridgelines and hilltops is as a scenic landscape that defines the rural character of the Town, and as a major contributor to the quality of life of the residents. In addition, the ridgelines and hilltops

- Are the site of the headwaters for the streams that are integral part of Hanover’s water resources;
- Are often a habitat and refuge for wildlife;
- Represent areas of important habitat for a number of plant species, including some that have been identified as being endangered, rare or uncommon in New Hampshire.

Definition of Ridgelines and Hilltops

The Rural Study Group has used a number of approaches to identify the most significant ridgelines and hilltops, including past surveys of residents of the town, geographic features identified in the Master Plan, and fieldwork by the Rural Study Group to identify topographically notable features visible from public streets within Hanover. The Rural Study Group has developed the following definitions for hilltops and ridgelines:

- Hill – A well-defined natural elevation smaller than a mountain¹⁷
- Hilltops in Hanover – Those well-defined natural elevations having terrain that descends two hundred feet vertically down on all sides from the

¹⁶ Valley News, issue of 11/11/07

¹⁷ American Heritage dictionary

highest point without significant interruption from an adjacent topographical feature. Only those hilltops that are visible from a public street in the Town of Hanover are included.

- Ridge – A long narrow upper section or crest¹⁸
- Ridgeline – A long narrow chain of hills or mountains¹⁹
- Ridgelines in Hanover – Those sections of land on hills or mountains that form visible crests as seen from a public street in the Town of Hanover, together with the land that extends a designated distance horizontally on either side of the crest.
- In addition, the ridgeline of Moose Mountain shall include to all land at an elevation of 1500 feet and higher.
- Ridgelines may be superimposed upon a hilltop to extend the area of concern horizontally from the ridgeline as well as vertically from the highest point of the hill.

Hilltops that meet the definition are:

- Hayes Hill;
- Hill 385 (east of Moose Mountain);
- Lords Hill;
- Oak Hill;
- Pinneo Hill;
- Pingree Hill;
- Rix Ledges/Mount Support;
- Velvet Rocks;
- Wardrobe Hill;
- Water Tower Hill.

Ridgelines that meet the definition are:

- The central spine of Moose Mountain extending south from the Lyme town line to the Canaan town line, and its six ridgelines that project from the central ridgeline (a) northwest to the Lyme town line, (b) east towards North Tunis Road (2), (c) east to Wolfeboro Road, (d) east to Goss Road, and (e) west towards Ruddsboro Road;
- Chandler ridge to the northwest of Chandler Road between Three Mile Road and Hanover Center Road;
- Dana ridge west of Old Dana Road;
- Hayes Hill ridge, which connects to Signal Hill to the south in Lebanon;
- On Lords Hill those four ridges projecting northeast, southeast, northwest and west, respectively, from the top;
- Mount Tug ridge, which connects the 1675 foot summit with the Lebanon City line;

¹⁸ American Heritage dictionary

¹⁹ American Heritage dictionary

- Reservoir ridge extending west of Dogford Road from a point north of Wolfeboro Road to a point on the southern boundary of the Appalachian Trail corridor;
- Richardson ridge east of Dogford Road extending as a southeast ridge from Pinneo Hill.

NEXT STEPS

To do nothing and expect that the valuable environmental resource lands of the Rural Residential and Forestry districts of the Town will be preserved, and the rural character of Hanover maintained, while certainly an option, does not seem to be the best course of action. In the past, the Planning Board has recommended, and Town Meeting has approved, amendments to the Zoning Ordinance that established minimum dimensions for lots in the RR district (3 acres for minor subdivisions and 10 acres for major subdivisions), and in the F district (50 acres).²⁰ These provisions have been established with the intent of guiding development in the respective districts at a density commensurate with the resource base and rural character of the land.

The Rural Study Group has outlined to the Planning Board the initial conclusions from its research and discussions, and made recommendations for the preservation of steep slopes, agricultural soils, and ridgelines and hilltops. The Rural Study Group recommends the establishment of a Rural Resources Lands Conservation (RRLC) district to overlay the RR and F districts and encompass land that is a steep slope, is comprised of agricultural soil and/or is on a designated hilltop or ridgeline. The Rural Study Group recommends that an application by a landowner to develop land within the RRLC district would require review by the Planning Board and the issuance of a Conditional Use Permit²¹. Standards to be applied in the Planning Board review should be laid down in an amendment to the Zoning Ordinance. Important in the context of a RRLC district and the issuance of a Conditional Use Permit by the Planning Board is the principle of using a tiered approach in the review of an application whereby development outside of the RRLC district should be explored first (Avoidance). If this is not feasible, development on rural resource lands may be considered, with emphasis on ensuring the least impact of the development activities (Minimization). The test of avoidance and minimization can be illustrated by the application of the following two questions to the development proposal:

²⁰ Town of Hanover Zoning Ordinance, Tables 204.7 and 204.8

²¹ Development in this context means the "Permitted Uses", as listed in the Town Zoning Ordinance, of land in the Rural Residential district (one- family dwelling, two-family dwelling, forestry, agriculture, outdoor recreation, produce stand, Governmental use, manufactured housing subdivision, use accessory to permitted use) and the Forestry district (forestry, agriculture, outdoor recreation, temporary sawmill, Governmental use, produce stand, use accessory to permitted use) as well as those uses permitted by special exception.

1. Avoidance – Can the proposed activity reasonably be located on that portion of the lot lying outside of any rural resource lands and buffers?
2. Minimization – Is the manner in which the applicant proposes to meet his or her needs and objectives the reasonable and feasible alternative with the least adverse impact on rural resource lands and buffers?

It should be noted that there are other mechanisms for land preservation that operate independently of the Town Zoning Ordinance and that depend on the voluntary participation of landowners. Some Hanover landowners have elected to further the cause of land preservation by donating parcels to the Town, or by granting conservation easements that define, in perpetuity, the manner in which the land may be used. The purchase of parcels of land for purposes of conservation is also possible; the Hanover Conservation Commission and the Hanover Conservation Council, for example, have contributed in this manner to the preservation of ecologically valuable tracts of Hanover land. Another approach to land conservation is the application of the principle of the "Current Use" tax, which provides financial incentives to encourage the maintenance of land in its present, natural state.

The Rural Study Group has recommended that the Planning Board convene a public workshop open to all residents in the Town. The purposes of the workshop, to be held at 7:00 PM on January 15th, 2008 at Trumbull Hall, Etna, are to inform participants of the work of the Rural Study Group, and to solicit the views and suggestions of the Town's people as to the way ahead. The Rural Study Group will take public views into consideration as it formulates its final recommendations to the Planning Board.