

3. Land Use

Sandwich--Geographically Large with Limited Development

In brief Sandwich has:

- Over 60,000 acres or approximately 94 square miles. It is one of the largest communities in the state.
- About 17,000 of these acres, about 29% of the town, are within the White Mountain National Forest,
- Over 90% of its land is undeveloped while about 10% is in agriculture and buildings—mostly single family homes.

Overall Land Use/Land Cover—Most of Sandwich is Undeveloped

While almost 90% of Sandwich is forested, only about 1.5% is developed as buildings—mostly single-family residences. Even removing the White Mountain National Forest lands from Sandwich’s total land area, Sandwich is still only 2% developed as buildings. Agriculture and open land is about 8% of Sandwich.¹ These figures reveal the fact that Sandwich is inextricably linked to its natural resource base of forests and open lands. **See Map 1, General Land Use/Land Cover.**

Much of Sandwich’s developed areas occur in a linear fashion along the town’s roads or in small village areas, such as Center Sandwich. Some of the developed area is related to sand and gravel operations near the town’s eastern border with Tamworth.

Developed Lands

These lands comprise 901 acres and include the following categories of use:

Developed Land Category	Acres
Residential/commercial	40
Transportation	708
Disturbed Land (gravel pits, etc.)	153

The residential/commercial category is relatively small and is based solely on the literal area of land associated with a building as determined from aerial photo interpretation. Most of

¹ Land cover calculations are based on interpretation of 30-meter satellite imagery from the 2001 New Hampshire Land Cover Assessment. For residential and commercial use, only disturbed areas with a structure on approximately one acre are noted. In reality, there are likely to be a larger number of acres devoted to residential activity, but this methodology is not able to capture this activity.

these areas are within Center Sandwich and North Sandwich villages. Because of the relatively small size of some structures, they may get grouped into the agricultural or forest category, particularly when there are numerous acres of open land associated with a residence.

Note: The 2% figure used for developed land differs from the approximately 30% developed land figure used in the Economic Conditions Chapter. This figure is based on tax parcels which assigns a land use category to the whole parcel even if only a portion of it is developed. For example, a ten acre lot may have only 5,000 sf devoted residential, but for assessing purposes the whole lot may be considered residential or developed.

The transportation category includes all the roadways in Sandwich, while the disturbed land is primarily related to the sand and gravel extraction operations along Route 113 near the Tamworth boundary and the fairgrounds in Center Sandwich, which comprise about 30 acres.

Open and Agricultural Lands

These areas, which comprise 4,363 acres, are open fields, fields in agricultural activity and the power line corridor that bisects Sandwich from east to west, approximately 270 acres.

Historically, farming was one of the main economic activities in the early settlement of Sandwich, from the 1700's through early 1800's, consuming much of the acreage in town. Over time, many families migrated to large towns and cities where there was more employment, or to the Midwest where soils were more fertile. With this migration, the agricultural fields and livestock pastures reverted to scrub, woodland and forest. According to the 1980 Master Plan, there were only approximately 18 active farms remaining in Sandwich. However, most of these were not full-time farms. Farm owners needed to rely on other sources of income to make a living. Most of the farms produced fruit, vegetables, hay, cattle, poultry, maple syrup and honey. Previous data sources from 1980 identified 1,564 acres of agricultural land in the community, of which 1,190 acres were active. Although diminished, agriculture continued to contribute to the open spaces and character of the community in subsequent decades.

Recent data on farm activity by the USDA is no longer kept with the same degree of detail as in 1980, in order to protect individual privacy. General data is kept by zip code—not by town—for the number of farms and general farm size, updated every 5-7 years. The USDA defines a farm as one that makes \$1000 or more in annual profits. According to this definition, in 2002 there were 22 farms in the Center Sandwich zip code and seven in the North Sandwich zip code. Of those farms making over \$1,000, 11 were greater than 50 acres and 18 were less than 50 acres. By 2007 there were three fewer farms, with a total of 19 farm operations in the Center Sandwich Zip Code (03227), comprising 9 farms of greater than 50 acres and 10 that were less than 50 acres. In the North Sandwich Zip Code (03259) there

were more than double the number of farm operations at 15—8 greater than 50 acres and 7 that were less than 50 acres.

Note: According to Current Use by Type data from the town's assessor file, there are over 100 parcels recorded as farmland, ranging in size from one acre up to 88 acres, for a total of 894 acres.

As an indicator of the support for agricultural activity in Sandwich, the 2010 Town Meeting voted to establish an Agricultural Commission with the purpose of protecting agricultural lands, preserving rural character, providing a voice for farmers and encouraging agriculture-based businesses.

Forest Lands

By far the largest area of land cover in Sandwich is forest lands, covering 52,621 acres or almost 90% of the town. Approximately 17,000 acres of this total is in the White Mountain National forest. The town's large quantity of forest resources have provided a significant economic driver to Sandwich for many years.

Managed Forests

Based on Carroll County Conservation District data, there are forty-one (41) private working forests, with Forest Management Plans totaling some 5,200 acres. In addition, within Sandwich there are twenty (20) private forests comprising 4,800 acres that are in the Tree Farm Program supported by the Carroll County Cooperative Extension. However, there are another 36 tree farms in adjacent communities which have some portion of their holdings in Sandwich. In total, these tree farms comprise 9,400 acres. Of these 36 tree farms, it is very likely that at least 200 acres fall within Sandwich; therefore, there are likely to be over 5,000 acres of managed forest in Sandwich. Landowners in the Tree Farm Program must manage their forest lands to ensure continuous production of commercial forest crops in a manner consistent with practices approved by the American Forest Institute. The number of tree farms has declined since the 1981 Master Plan. Data sources from 1980 identify twenty-nine (29) tree farms (compared to 20 in 2009) totaling 7,144 acres or 12% of the total land area.

Town Forests

Sandwich owns four parcels totaling 161 acres that are designated as town forest and are identified in **Appendix B (Sandwich Conservation Lands) of the Natural Resources Chapter**. Three of these are located between Young Mountain Road and Wing Road west of Route 113 A as shown on **Map 12, Conservation Lands**. The fourth parcel is located off Route 113 associated with the transfer station. There is no management plan for any of the parcels.

Annual Taxable Timber Harvest

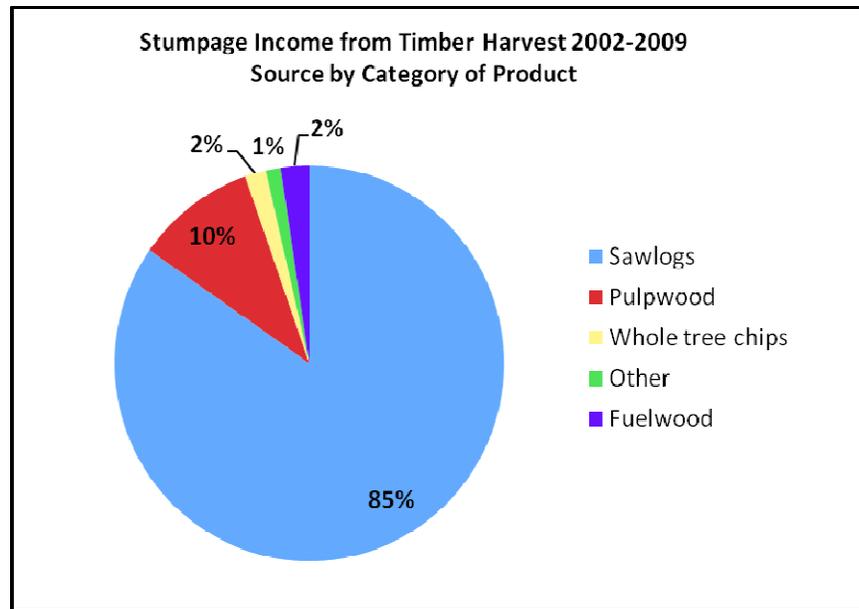
A good measure of the amount of timber that is being cut in Sandwich and its stumpage value can be gained by analyzing the data generated through the state Timber Tax Program. Through this program the town is eligible to receive 10% of the stumpage value cut in the town. As part of this process the town is required to determine the type of timber cut and

its value. Data for the period 2002 through 2009 were analyzed by a town citizen, Ron Lawler, and has been incorporated into this report.

In summary, for this eight-year period, the analysis revealed the following:

- The total stumpage fee was \$3.1M, a significant income to the landowners. See Figure 3.1.

Figure 3-1. Stumpage Income

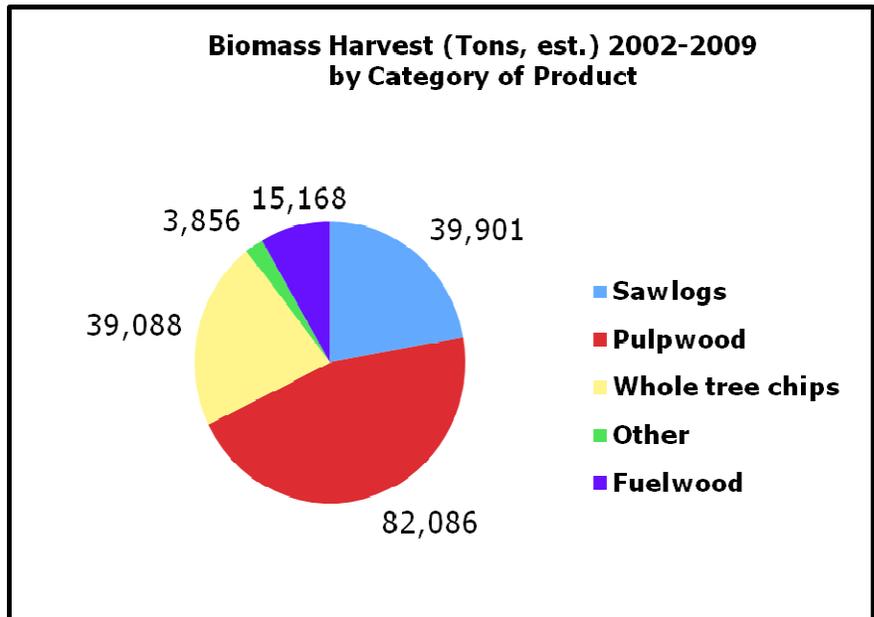


Source: Ronald Lawler, 2009

- Saw logs accounted for most of the income (\$2.6M or 85%) and the cuts involved approximately 230 parcels of land, some with more than one harvest.
- The total acreage of the parcels involved—as opposed to the estimates of the actual cut area—is 16,600 acres, amounting to approximately 25% of Sandwich’s land area
- An average of about \$40K per year was earned by the town in yield taxes.

- In terms of total tonnage or biomass, about half is pulpwood (paper), a third wood chips and cordwood (fuel) and the remainder saw logs. See Figure 3-2.

Figure 3-2 Biomass Harvest



Source: Ronald Lawler, 2009

Potentially Viable Commercial Forest Areas

In the 1981 Master Plan it was reported that more than 50% of the town's land area contained concentrations of timber stands which had sufficient market

potential to be harvested. This information was based on a study by the US Forest Service of the town's forests, including timber type and density. Similar studies have not been conducted since then. Based on discussions with the Conservation Commission, a procedure for determining areas of potentially high value for commercial forest production was derived.

First, any areas with slopes greater than 15% were eliminated. Second, only blocks of 50 acres or more were considered. Third, for each block the amount of forest soil groups were determined. The higher value areas for commercial timber included higher value soil groupings. Four ranks were identified in the following order from highest value to lowest:

- Rank 1: 50% or more of Class I A forest soils
- Rank 2: 50% or more of Class IB and IC forest soils
- Rank 3: 50% or more of all Class II Soils
- Rank 4: Any mix of Class I and Class II soils where no individual soil class was greater than 50%

The results are shown on **Map 8, Potentially Commercially Viable Forest Areas**, where the highest ranking area (Class IA soils) is 155 acres, the next highest rank (Class 1B and IC) is over 13,000 acres and the third highest is just 109 acres. The next rank is mixed soils, comprising the largest number of acres, simply meaning that no particular class predominates. It would appear that while Sandwich generally has good soils for forestry, there are not large contiguous blocks of the highest rated soils.

**Forest Blocks Greater than 50 Acres
By Soil Class**

Soil Class	Number of Acres
IFSG Class IA	155 acres
IFSG Class IB o IC	13,003 acres
IFSG Class II (A,B,C<)	109 acres
Mixed Soils	20,855 acres

Current Zoning

The current zoning reflects the town’s desire to manage development by identifying the types of uses and controls that are appropriate in different areas of Sandwich. See attached map. For example, the Historic District represents the town’s desire to encourage uses and activities that are consistent with its historic character in Center Sandwich.

There are five (5) separate zones:

A. Rural/Residential District

Rural/Residential zoning dominates the town. It is a zone that allows primarily residential structures, including mobile and manufactured homes. It also provides for accessory structures, home occupations, day care, agriculture, recreational uses, gravel pits, such institutions as churches, municipal buildings and schools.

Cluster residential housing is allowed within this district. This regulation allows a greater density of residential units in exchange for the setting aside of common open space for recreation and resource protection. The common open space is to be at least 25% of the cluster development. In order to increase the level of protection, this percentage could be increased. This regulation leaves much of the layout and design standards for any given proposal up to the discretion of the Planning Board. Additional guidelines or standard with flexible provisions might provide a more predictable review process.

B. Historic District

This district is located in Center Sandwich Village and allows all uses permitted in the Rural/Residential District except for mobile homes, manufactured homes, commercial cable TV towers and gravel pits.

C. Commercial District

This zone is located along Whittier Highway (NH Route 25), and allows all use permitted in the Residential District, as well as retail businesses, light industry, electronics assembly, and professional offices, banks and motels. Specific standards for this district include a requirement for a 200 foot wooded buffer between the center line of a public way and any business building, parking lot or storage area.

D. Shoreland District

This zone includes all areas within 600 feet of the following lakes and ponds: Squam, Red Hill, Bearcamp, Little's, Dinsmore, Kusumpe, Intervale and Barville. It allows for single family residential and accessory structures, beaches, parks and boat access, as well as home occupation. There are a number of district standards, including length of shoreline per lot, limits on tree-cutting, stormwater, use of herbicides, pesticides and fertilizer and a prohibition on certain types of uses, such as underground fuel storage tanks. This district covers the main surface water bodies, but does not include riverine shorelands.

E. Skyline District

This zoning district is noted on the Sandwich Steep Slopes Map and recently revised Zoning Map, and corresponds to areas above certain elevations and ridgelines. No structures are permitted. Agriculture, silvaculture and recreation are permitted.

Issues and Challenges

Since much of Sandwich is undeveloped land in forest or open space/agricultural land cover or use, it will be important for the town to manage these lands in a manner that protects its rural and village character. Encouraging environmentally sound forest management and agricultural activity is critical to maintaining this character

For the most part, the Town of Sandwich has developed a set of zoning and land use regulations that are aimed at protecting and conserving its natural, historic and scenic resources that provide the key elements of its rural and village character.

When asked what Sandwich should look like 20 years from now on the Community Survey of 2009, the highest response by far was: *rural, quiet, much like today*. There was also a significant response to having: *slow reasonable growth*. There are several regulatory issues that should be addressed that would contribute to the long term vision of the town.

These include:

A. Land Use Management

- Foremost among the challenges is the need for better spatial digital data, particularly with respect to tax maps and individual map parcels. In addition to the parcel data, it is critical to have both computer hardware and software that will allow for improved managing and monitoring of land use activity, including both the quantity and quality of development in Sandwich.
- For the most part, the map set that is part of this Master Plan will provide the spatial resource data to establish land use policies. The missing piece is the digitized tax maps that can help identify key parcels that might be affected by future land use change or that might be suitable for protection or conservation.

B. Forest Management

- As part of the town's policy for timber management for the timber tax program, individual forest management plans are required. This practice should continue.
- Sandwich owns four parcels totaling 161 acres that are designated as town forest, but no management plan has been prepared for this valuable property.
- While forest management plans are a good practice on individual properties, there is no mechanism for coordinating management plans on adjacent properties. Facilitating timber management plans would encourage groups of adjacent property owners to implement more efficient timber management, as well as coordinating wildlife management and recreational opportunities.

C. Preservation of Agriculture

- While there is a small amount of land devoted to agriculture, and the acreage has declined since the Master Plan of 1981. At the same time there are more active, although smaller, farms. The town should work to maintain or enhance both the amount of agricultural land and the number of farms.
- The establishment of an Agricultural Commission is a good first step in providing a local tool for preservation of agriculture. It is important that this commission undertake activities that will fulfill this mission.
- The land use regulations in Sandwich must allow the greatest possible opportunity to conduct agricultural activities as per NH RSA 672:1, III-b.

"Agricultural activities are a beneficial and worthwhile feature of the New Hampshire landscape and shall not be unreasonably limited by use of municipal zoning powers or by unreasonable interpretation of such powers."

D. Cluster Regulation

The intent of this regulation is to discourage sprawl and protect open space. It would appear that this purpose may not be achieved under the current regulation for the following reasons:

- No minimum size for such a development is provided.
- This regulation only provides for 25% open space. This should be increased.
- There are no dimensional standards.
- There is no documentation of what are permitted and non-permitted uses in the open space area.

E. Shoreland Regulation

- The Shoreland District covers the major surface waters, but not all streams and brooks. While the state Comprehensive Shoreland Protection Act (CSPA) includes Great Ponds and 4th and 5th order streams, it does not regulate lower order streams (1, 2, and 3)

F. Lot Area

- Lot areas are contained in both Article II Section 150-10 of the Zoning Ordinance and Article IV Section 170-21 of the Subdivision Regulations. This repetition is not necessary. The standards should be contained in one regulation or the other, usually in Zoning. See the box below.

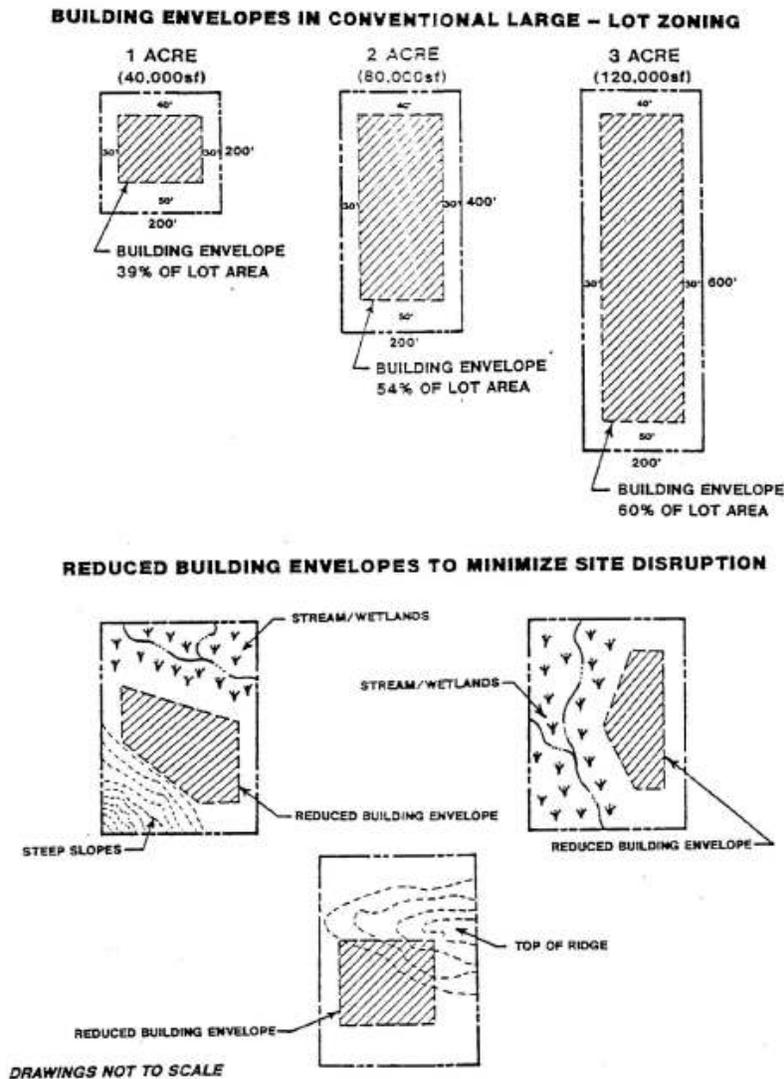
G. Dimensional Standards

- The Zoning Ordinance has a single section on setbacks that applies to all zones. In addition, there are individual setbacks within other districts or overlay zones. Providing dimensional standards by individual zones would clarify this provision and make them particular to each zone. Furthermore, the setbacks are reiterated in the Subdivision Regulations for residential uses. Having these standards in two different regulatory documents may be unnecessary and could raise legal questions.

Note: Zoning ordinances are established to define districts within a community within which particular uses are permitted. In addition, zoning standards usually include dimensional standards within the district. Subdivision regulations provided standards for the layout and character of design for residential development whereas site plan regulations do likewise for commercial, industrial and multi-family residential activities. Usually dimensional standards are codified in the zoning ordinance and can only be changed by a variance procedure through the Zoning Board of Adjustment. *Summarized from The Planning Board Handbook in New Hampshire, 2009.*

- Building area—Except for the limiting provisions for steep slopes and wetland setbacks, the Sandwich Zoning Ordinance requires a building lot to be 100,000 sf. Applying the setbacks of 25 feet per side with 165 foot frontage, the building envelope is 63,250 sf or more than 60% of the lot. While it is important in a rural community like Sandwich to provide flexibility in siting a home, it is not necessary to allow for such a substantial disturbance to take place within an area of this size. A building area can be more narrowly defined and the most suitable areas for development used. Building envelope lines can be drawn outside steep slopes and wetlands that the town wishes to protect. See Figure 1 below. This approach is aimed at siting buildings in suitable areas, even if the overall envelope maybe less than provided under conventional zoning.

Figure 1. Building Envelopes, Conventional and Creative



Source: *Preserving Rural Character, PAS Report # 429, American Planning Association*

Action Plan

Vision Goal for Land Use

Allow for modest growth of residential development that is of a size, design and quality that is compatible with Sandwich's small town, rural character and recognizes Sandwich's changing demographics.

Objective LU: 1: Implement a digital information system that will link both spatial and community information into an integrated data base.

Actions

- LU 1.1: Create a digital graphic tax map system that can be linked to the assessor's property data base.
- LU 1.2: Consider implementing a Geographic Information System that will incorporate and coordinate all community land related data, both numerical and spatial, into a common system.
- Research and document current and potential future applications that will benefit from a GIS system.
 - Identify data required to support those applications, and document which data sets are available and which will require development.
 - Identify current and potential future system end-users. Engage these end users early in the process to build awareness and support.
 - Secure community commitment for the GIS system.
 - Identify resources available to support the GIS – staff, equipment, etc., - and those that will need to be acquired.
 - Determine whether hosting the system in-house or contracting system hosting out is most effective for your community. Trained staff and appropriate equipment will be required in both cases.
 - Establish technical and policy committees to develop standards and policies regarding data development, data access, etc.
 - Plan and design system implementation, taking into account the size of your staff, the range and complexity of functions the GIS will be required to support, the IT expertise and support available to you.

Note: For the long-term the Town should acquire a single Geographic Information System (GIS) for use by Town Boards and Departments that will satisfy the needs of the Planning & Zoning Boards, Conservation Commission, Assessor, etc. Such a system will be able to integrate both mapped data with town record data and will allow the town to update its information data base. It will also allow the town to undertake analysis of mapped information for better decision-making.

Objective LU: 2: Implement Land Use Regulations that enable growth to be managed in a manner that will maintain Sandwich's rural and village character.

Actions

LU 2.1: Amend the Cluster Provision in the Zoning Ordinance to ensure that the quality of development is consistent with the town's rural character.

- Clearly state in the Purpose section that this provision is meant to retain the town's rural character.
- A minimum size for the cluster parcel such as 15-20 acres
- Allowance for reduced dimensional standards with flexibility to allow for more compact development and more protected open space.
- Establishing an increased minimum size for the open space, such as 50% of the parcel.
- Defining uses for the open space that maintain the quality and integrity of the area.
- Ensuring that part of the open space can be usable for recreational activities for the residents of the cluster.
- Requiring a vegetated buffer around the cluster development.
- Discouraging lots on the frontage road to the cluster.

LU 2.2: Amend the Subdivision Regulations to minimize the overlap of dimensional and site/design standards between subdivision regulations and the Zoning Ordinance. For example, the lot size determination for clusters is located in both Zoning and Subdivision.

LU 2.3: Amend the subdivision regulations for steep slopes and have it be contained within the Zoning Ordinance. In addition, modify the language to provide more clarity about the amount of 15% slope that is needed to increase the minimum lot size. Currently it is not clear if the 15% applies to the whole parcel or any portion of it.

LU 2.4: Adopt an approach to minimum lot size that defines a building area or envelope of a particular size that is free of environmental constraints (such as 15% or more slope or setback from wetlands) so long as the remainder of the

lot is not disturbed and still meets the overall minimum lot size. Zoning standards could include:

- Maximum building envelope
- Maximum total lot disturbance
- Minimum spacing between building envelopes
- Setback from building envelope to lot line
- Minimum building envelope setback from wetlands, waterbodies, streams and rivers
- Frontage

LU 2.5: Review Subdivision and Site Plan Review Regulations to be sure that they reflect the need to protect rural character and that any development under these provisions minimize environmental impact. Consider appropriate standards for:

- Public roads and driveways,
- Stormwater management, and
- Landscaping.

Objective LU 3: Preserve and protect Sandwich’s valuable forest and agricultural resource base by maintaining and enhancing existing unfragmented lands and active farming and forestry activities.

Actions

LU 3.1 Review local zoning, subdivision and site plan review regulations to ensure that the full range of agricultural activities are permitted including subsidiary uses such as:

- roadside stands (size, can any percentage of products be from elsewhere, etc.);
- greenhouses;
- signs—regulations on temporary signs; off-site signs allowed; and
- consideration of nuisance issues.

Note: Under the NH Right-to-Farm Law (RSA 432:33) protects farmers operating in accordance with recognized best management practices from nuisance complaints.

LU 3.2 Establish forest management plans for all town forests.

**Sandwich, New Hampshire
Master Plan Update**

Zoning Districts

Zoning District	Area (Acres)
Rural Residential District	48,888.5
Skyline District	7,028.4
Shoreland District	3,996.6
Commercial District	546.7
Historic District	50.3
Total	60,350.7

- Base Map Features**
- Town Boundaries
 - State Routes
 - Municipal/Private Roads
 - Rivers and Streams
 - Lake/Pond
 - White Mountain National Forest

Map Sources: Information is obtained from public maps and data provided by State of New Hampshire, 2011.
Historical Boundaries: 1850s 1:50,000 Digital Line Map, last updated 2008.
Source: Water - 1:64,000 National Hydrography Dataset, 1:250,000, 1987.
Transportation Features: 1:64,000 Public Roads Database, 1:250,000, 1987.
Geographic Information: 2008.
All data used from NH GRANITEL, University of New Hampshire.

