

Master Plan 2013

Town
Of
Lyme, NH



Town of Lyme, New Hampshire Master Plan

2013

This Master Plan was prepared by the Lyme Planning Board with the input and assistance of the residents of Lyme. The 2013 Planning Board wishes to thank the current and former Board members, residents and the Town Office staff for their contributions to this plan.

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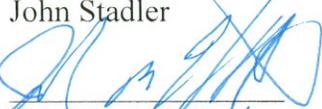
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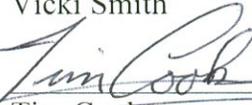
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Chapter 1 -A Vision for the Future of Lyme

*Lyme should maintain and enhance its rural character,
scenic vistas, environmental quality,
educational excellence and traditional village areas,
while strengthening its sense of community,
offering opportunities for a variety of housing types and office, retail
and service uses that meet the needs of Lyme residents,
promoting a responsive local government and providing recreational opportunities for all.*

What does vision have to do with the Master Plan?

Lyme's Master Plan is a guide as well as a formal policy statement about the future of Lyme. The vision is the inspiration behind the policies that are included in the Master Plan. The Master Plan guides the Town to a future envisioned by current residents. Policies in the Master Plan are general guidelines that provide direction about how to achieve the vision. Land use regulations such as zoning, site plan review and subdivision, are tools with more detailed parameters about development; these tools put the Master Plan policies into practice. These policies have their genesis in the vision residents have for Lyme.

vision ⇒ policies ⇒ land use regulations

How can there possibly be a single statement about Lyme's future?

No single statement can comprehensively capture the vision Lyme's townspeople have for the future of the Town. However, by giving Lyme residents many different opportunities to express their ideas about the future, using a community attitude survey and a series of neighborhood meetings and forums, the Planning Board has heard some consistent themes.

A particular perspective on the future of Lyme certainly will differ depending on an individual's life circumstance. Consider that:

An older resident might hope Lyme will be a place:

- that is safe with daily opportunities to interact informally with neighbors and friends or perhaps as volunteers serving together on local boards;
- where one can enjoy every day living close to nature and at the same time be close to a local medical clinic, a nationally recognized medical center and an Ivy League college with all of its cultural attractions.

Working adults might hope that:

- when they arrive home after a relatively short commute, they can enjoy peace after a hectic work day;
- they will be able to meet neighbors at the local store or restaurant;

- they would be able to start a business at home or locate a business at another location in Lyme.

Families with school aged children might hope that:

- the Town continues to provide an excellent elementary and middle school education and high school choice for their children;
- the Town continues to provide diverse recreational opportunities and to hold family-oriented events on the Common, at Post Pond and at the Library.

Teenagers might hope that:

- Lyme has high speed internet, a movie theater, indoor climbing wall and skateboard park;
- public transportation service will be available to high school, neighboring communities and work places so they are not so dependent on their parents for transportation.

Younger children might hope that:

- there will always be events at the Library, flea markets on the Common, the Pond Program, the pumpkin festival, the Christmas Pageant, and a good snow pack for skiing at the Skiway;
- there will always be turkey, deer and fox in their yards and birds of many colors at their feeders;
- there will always be farms to visit and streams and woods to explore.

These visions are not those of any one person, but are representative of the hopes people have for Lyme. Not all parts of the vision have land use implications. It is the Planning Board's responsibility to distill what they hear from residents into land use policy and proposed implementation strategies.

How is the vision created?

The vision is a consensus statement combining the most commonly held community values. What are the most important issues facing Lyme? What should be done about those issues? Does the community desire economic growth? If so, where? Are there special natural and historic resources that the community wishes to preserve? What kind of housing should be encouraged? Answering these types of questions helps define the vision and identify guiding principles for the master plan and, subsequently, the resulting land use regulations.

Lyme's vision statement reflects the general consensus of Lyme residents. It is based on the *2006 Community Attitude Survey*, the results of the neighborhood meetings held in 2007 and forums held in 2012, input from Town boards and departments, and comments of residents. The results of the *2006 Community Attitude Survey*, forum results, and summaries of the neighborhood meetings are included in Appendix A. The survey itself is set forth in Appendix A at page A-21. The 2006 survey results are a "snapshot in time" and are now more than six years old. The Planning Board has sought to update the views expressed in the survey results through close

attention to public comment received directly from concerned town's people and in public hearings on Master Plan drafts and in the 2012 forums on agriculture, housing and development along Route 10.

Lyme's most important assets and qualities - the elements that make Lyme what it is, are summarized here:

- Scenic beauty
- Sense of community
- Quality schools
- Small population
- Personal and family safety
- Farms and forests
- Outdoor recreational opportunities
- Traditional village areas

The Vision for Lyme:

Lyme is a place for people to live close to nature where change to the landscape occurs slowly and the built environment is traditional in form and human in scale.

Lyme residents identify strongly with the Town's scenic beauty and sense of community. Maintaining Lyme's villages, rural character and managing future growth and development are of paramount importance.

Lyme residents place a high value on protecting historic sites and structures, natural areas, the shores of streams and ponds, wildlife habitat, forest trails, farms and farm land, scenic views, forested hillsides and ridgelines and access to public waters.

Scenic Beauty:

People's sense of scenic beauty varies. To some it is distant views of mountains and ridgelines, to others open pastures and fields, a view of the Connecticut River or quiet stream, or a view of Lyme Village and the Common. What they all share is a sense of continuity and consistency. Development on a ridgeline destroys its scenic quality, as does a house in the middle of a meadow or beside an otherwise undeveloped pond or stream, or a large modern building in the heart of a traditional New England village. Preserving scenic beauty does not involve picking one type of view over another, but rather preserving continuity and consistency throughout the Town.



Sense of Community:

Lyme has a strong sense of community. With an estimated 1716 residents, Lyme is a small town. Sense of community means knowing your neighbors and knowing that you stand ready to help one another in time of need. Reliance on volunteers reinforces the sense of community and the small town feeling. Residents participate in local government and in a variety of local organizations: the churches, the school, Those Guys, Women's Utility Club, Lyme Historians, School Board, FAST squad, Fire Department, the Lyme Foundation, the Lyme Town Band, Pinnacle Snowmobile Club, Meals on Wheels, workers who clean up and open at Post Pond beach, organizers of the Fourth of July celebration and the Pumpkin Festival, scout leaders, deacons, coaches for sports teams and the ski program, workers at the Library, and contributors to the Lyme Community and Church News. Face to face interaction at the village store, churches, post office, Stella's, The Lyme Inn, Town Meeting, School events and Skiway all contribute to the sense of belonging. Lyme ListServ and Lyme Community and Church News solidify connections between those residents who may not have much face to face contact. Town-wide events such as the Memorial Day observance, Old Home Day and the Independence Day events also build sense of community. The interactions of Lyme residents, working together to maintain the quality of life in Lyme, create what is known as social capital. Lyme is rich in this type of community wealth, wealth that is founded on and grows out of the mutual trust and respect that comes from working with common purpose to achieve shared goals.

Lyme is also part of the greater Upper Valley community. Easy access to the greater community provides a wealth of social, economic, cultural, educational, medical and employment opportunities. The Town is a better place to live because of these opportunities.



Memorial Day Observance on the Lyme Common

Quality Schools:

Lyme is justly proud of its elementary school and its students. It ranks near the top of schools in the state in students' performance on standardized tests. Small class size, a dedicated staff and school choice in selecting high schools are important contributors to why many families choose Lyme as a place to live and raise their children.

Small Population:

Lyme's small population, estimated at 1716 in 2011, is critical to maintaining its essential, highly-valued characteristics.

In the *2006 Community Attitude Survey*, Lyme's growth rate was ranked as:

- "about right" by 48%,
- "too rapid" by 19% and
- "too slow" by 17% of the respondents.

Although the largest number of respondents identified Lyme's growth rate as "about right", development and growth was cited by 52% (third highest) of respondents as one of the most important issues facing the community.

Personal and Family Safety:

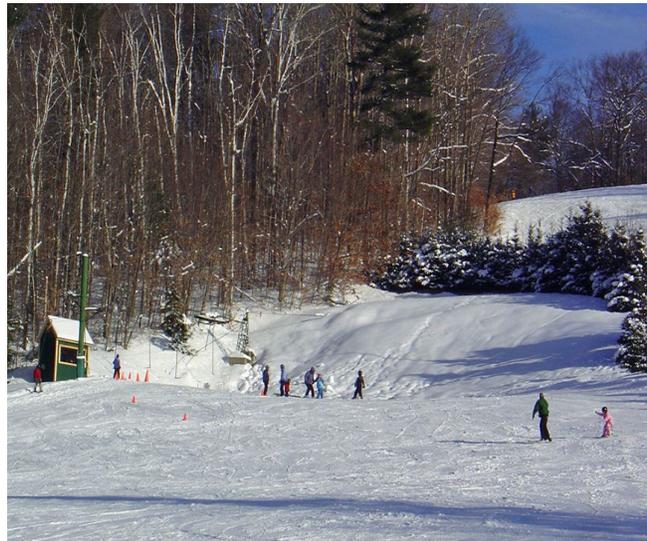
Lyme is a safe community. The police and volunteer fire departments were rated “excellent” or “adequate” by the town’s people.

Farms and Forests:

Lyme’s farms and forests were once the cornerstone of the local economy. While now a relatively small part, they are very important to the community because of their contributions to the high quality, locally grown food supply, scenic quality, wildlife habitat and water quality. They are a significant part of Lyme’s character and form an important link to the past.

Outdoor Recreation Opportunities:

Walking/running, hiking and cross-country skiing are the three most popular forms of recreation cited by residents. The many trails in the Town’s conservation areas, its class VI roads, the Appalachian Trail and trails on private lands that are generally open for public use, are all important to these recreational pursuits.



The Dartmouth Skiway is a popular outdoor recreation facility enjoyed by many Lyme residents. The co-operative program between the college and Town that makes alpine skiing and snowboarding available to all Lyme students at no charge has been very beneficial to the students and has produced world class skiers, including World Cup and Olympic skiers.

The Town’s recreational area on Post Pond provides facilities for swimming, boating, tennis, baseball, softball and basketball and in the winter the fire department floods an area of the parking lot to create a hockey/skating rink. The Town also has boat launch facilities on Reservoir Pond and canoe and kayak access to the Connecticut River from Hewes Brook on River Road.



Traditional Villages:

Lyme Common and Lyme Center Village retain their small New England village character and are included in the National Register of Historic Places. They are the location of most local businesses, both churches and both post offices. They also serve as the location for many community events in the library, school, on the Lyme Common and in the Lyme Center Academy building.

Natural and Historic Assets:

The *2006 Community Attitude Survey* asked respondents to rate the importance of protecting Lyme’s natural and historic assets. Between fourteen and twenty percent of those who returned the survey did not answer this question. Of those who expressed an opinion on the protection of the listed assets, ninety percent or more agreed that the assets should be protected. The percentages for each of the assets are shown in the following table.

Asset	Strongly agree or agree
Natural areas	98%
Historic sites and structures	98%
Farmland	94%
Shores of streams and ponds	95%
Wildlife habitat	95%
Scenic views and vistas	94%
Forested hillsides and ridgelines	90%
Access to public waters	95%
Trails	96%

The Most Important Issues Facing Lyme Today:

Maintaining Lyme’s rural character was the most frequently cited issue facing Lyme. Property taxes and development/growth were also identified as among the most important issues facing Lyme as was housing for people of all incomes.

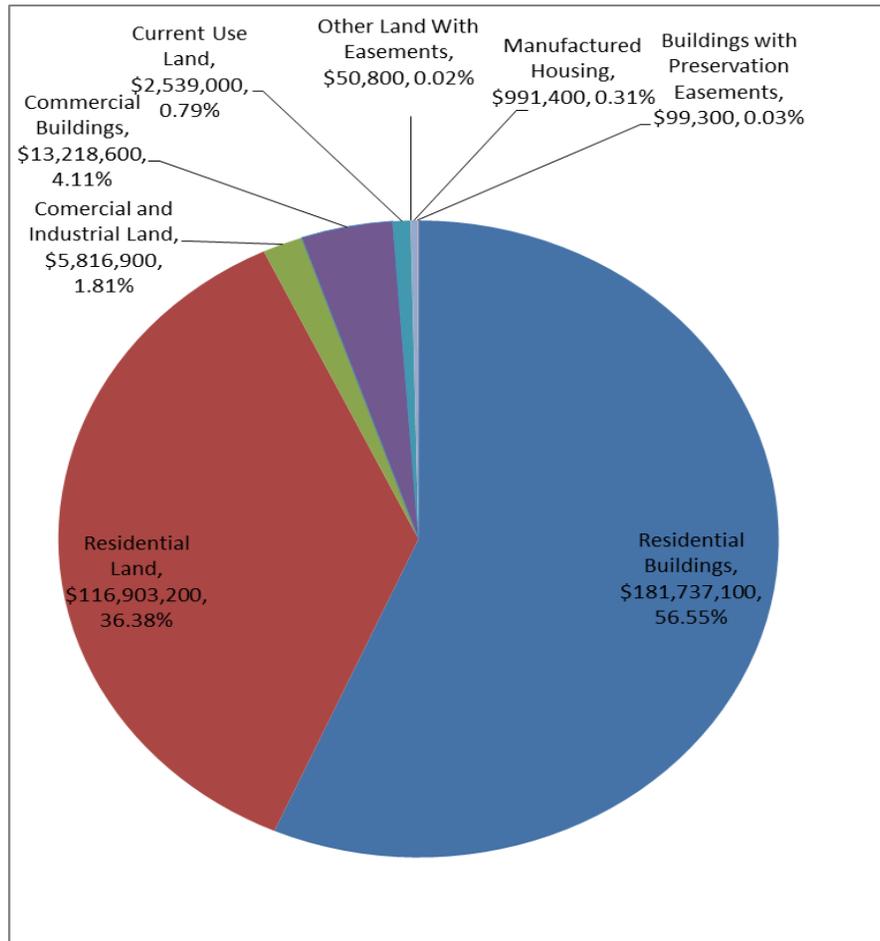
Maintenance of Lyme’s Rural Character:

Preservation of Lyme’s rural character is dependent on successfully integrating new development into the fabric of the community. Open space should not be turned into housing developments or industrial/commercial complexes. Vistas from roads and public places should be protected. The rate of development should be paced so that people still know and care about their neighbors. Development should only occur in areas with adequate supporting infrastructure and should be in harmony with the character of the existing neighborhood.

Property Taxes:

Property taxes are a significant concern. Property taxes can only be controlled through control of Town expenses or an increase in the tax base through additional development that is not offset by a corresponding increase in expenses. Increased development runs counter to the complementary objectives of controlling development and growth and maintaining Lyme’s rural character and so must be carefully regulated. An increase in the tax base through revenue positive commercial or industrial development would reduce the residential tax burden but only modestly and the possible negative impact of such development on quality of life might well outweigh the tax benefit. At present Lyme’s commercial tax base makes a very small contribution to total revenues. The Town’s total tax base is approximately 322 million dollars of which approximately 19 million dollars or 5.9% of the total is represented by commercial real estate land and buildings.

Town Tax Base by Property Type



Data Source 2011 MS-1 Form

Were the Town able to attract new business that doubled the existing commercial tax base and required no new services or housing, the real estate tax burden would shift by 5.2 %.

Studies such as the “1998 Cost of Community Services Study Town Of Lyme, New Hampshire”, prepared by Constance Pickard, "The Economic Impact Of Open Space In New Hampshire" by Resource Systems Group (for The Society for the Protection of NH Forests/1999,) and "Does Open Space Pay?" by Phillip A. Auger (UNH Cooperative Extension/1996) have shown that open space and current use land contribute more in tax revenue than the cost of the services they require. On the other hand, residential development, other than high-end residential development, generally costs more for services than it contributes in tax revenues. When commercial development does not require increased infrastructure or public safety expenses it provides more in tax revenues than the cost of increased services.

Residential Development:

Single family homes and the conversion of existing large buildings to dwelling units have been favored by residents of the town. New multi-family buildings, condominiums, co-ops and new apartment buildings were opposed. Ensuring a mix of families by accommodating housing for people of all incomes is a concern shared by many residents. Lyme residents would like new residential growth to occur along existing secondary roads, not on new subdivision roads. Residents prefer new residential development to take place in or near Lyme’s two villages or along existing paved roads, rather than clustered in new neighborhoods or villages.

Growth:

Overall, the town feels growth has been “about right”.

Commercial Development:

Residents support encouraging commercial development of restaurants, professional offices, small scale high technology and the expansion of existing businesses. New commercial development should be allowed, but Lyme’s land use regulations should not establish additional areas zoned for commercial development.

Town Services and Facilities:

Town services, other than child care and services to the elderly, have been rated adequate or excellent. Residents have also rated the schools, library, conservation areas, Post Pond Recreation Area, Fire Department, and Fast Squad excellent or adequate. Most residents did not know, or had no opinion, on the adequacy of child care services. The community has expressed concern about services to the elderly. Except for the new town office (completed in 2009), there was little support for new town facilities. Outdoor recreation facilities such as boat access to the Connecticut River, hiking and ski trails are more popular than indoor gyms and facilities that rely on structures. The lack of broadband access across much of the Town has grown to be an issue of high concern.

Recommendations:

- Changes in Lyme should minimize property tax increases and, when reasonably possible, be designed to minimize negative impacts.
- Lyme's natural environment and rural character should be maintained and enhanced,
- Guide and control development.
- Allow for a diversity of housing types suitable for people in a broad range of economic circumstances.
- Protect historic sites and natural resources including agricultural soils, aquifers, wetlands, ponds, streams, rivers, scenic vistas, un-fragmented forests, wildlife habitat, biodiversity and natural heritage,
- Assure that land be developed only in accordance with its ability to accommodate development with minimal disruption of natural systems,
- Encourage appropriate development to meet the needs of Lyme residents,
- Discourage development that contributes to sprawl or is incompatible with the future land use plan for Lyme or with neighboring uses due to access, scale, environmental impact, or traffic impact,
- Prohibit development that poses a threat to public safety or public health or that might cause traffic congestion, law enforcement challenges, inadequate fire protection or environmental degradation.
- Land use regulations and ordinances should be reviewed and revised as appropriate to be made as clear and easy to apply as reasonably possible.

Chapter 2 -Land Use

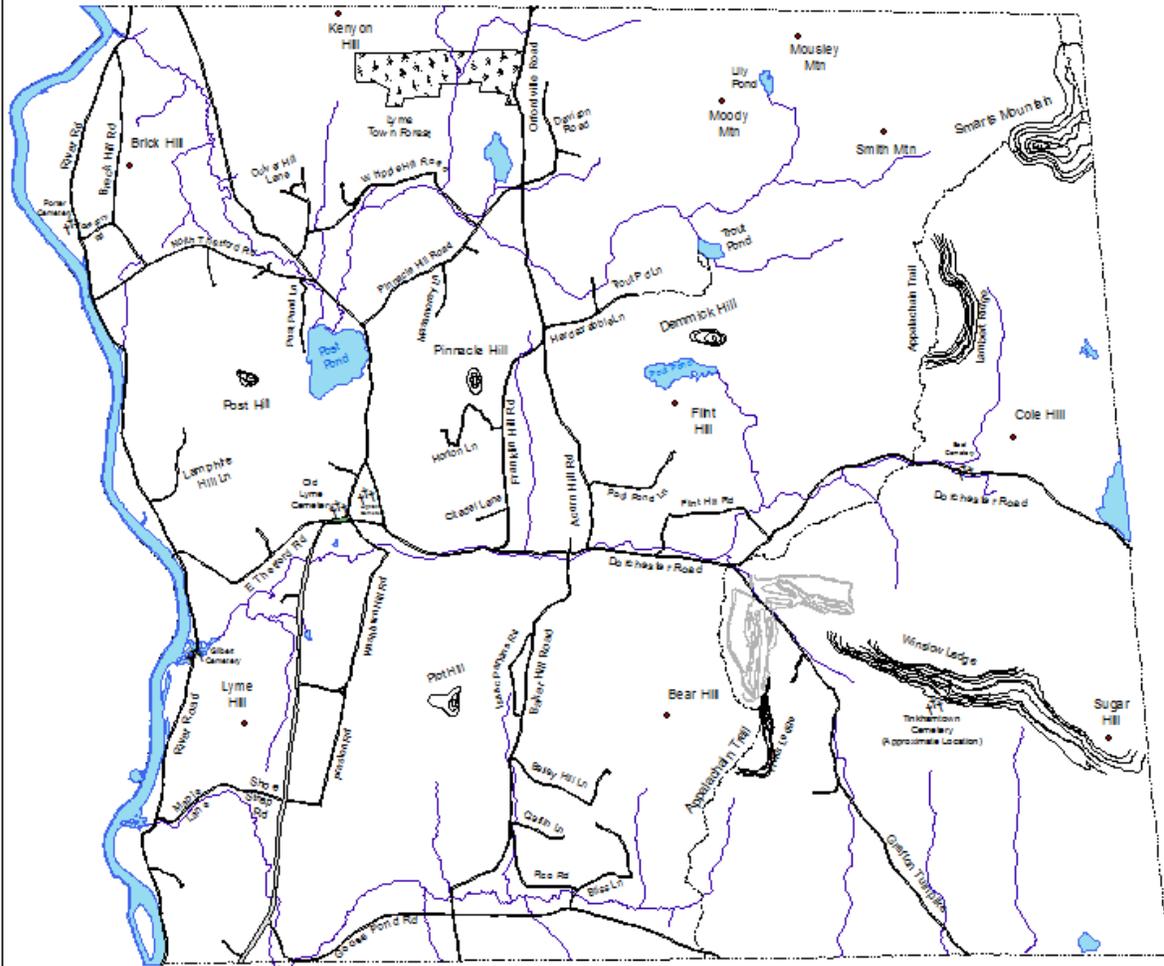
The existing pattern of land use is the result of a series of decisions landowners have made since the 1700s. It is influenced by natural characteristics of any given site, the site location relative to transportation corridors, and by State and local regulations that affect site development. The vision for future land use in Lyme is a product of what exists today and the general consensus of Lyme's residents. It is based on:

- The *2006 Community Attitude Survey* described in Chapter 1.
- The results of the neighborhood meetings held in 2007.
- Forums held in the fall of 2012 by the Planning Board
- Forums held in the spring of 2013 by the Lyme Foundation
- Input from the Town Boards and departments and comments of residents.

Lyme's distinctive land use pattern, appreciated by its residents, features two small villages set in a working rural landscape. From west to east, the development density varies from small lots and large farm tracts along the Connecticut River, to dense mixed use village clusters, to scattered low density residential areas in Lyme's central hills, to wild land with little road access in the easternmost part of Town.

Land use character in Lyme is most easily understood by reference to geographic areas: Lyme Common, Lyme Center, the Route 10/River Road corridors, Lyme's central hills, and the relatively undeveloped area of East Lyme. Future land use is also discussed in this way. This chapter concludes with a statement about development capability and recommendations for guiding land use in the next ten to fifteen years.

Town Of Lyme



Legend

- Summits
- † Cemeteries
- Lambert Ridge
- Winslow Ledge
- Holts Ledge
- Appalachian Trail
- Dartmouth Skiway
- ▭ Roads
- Streams and Brooks
- Rivers, Lakes and Pond
- ▭ Town Forest

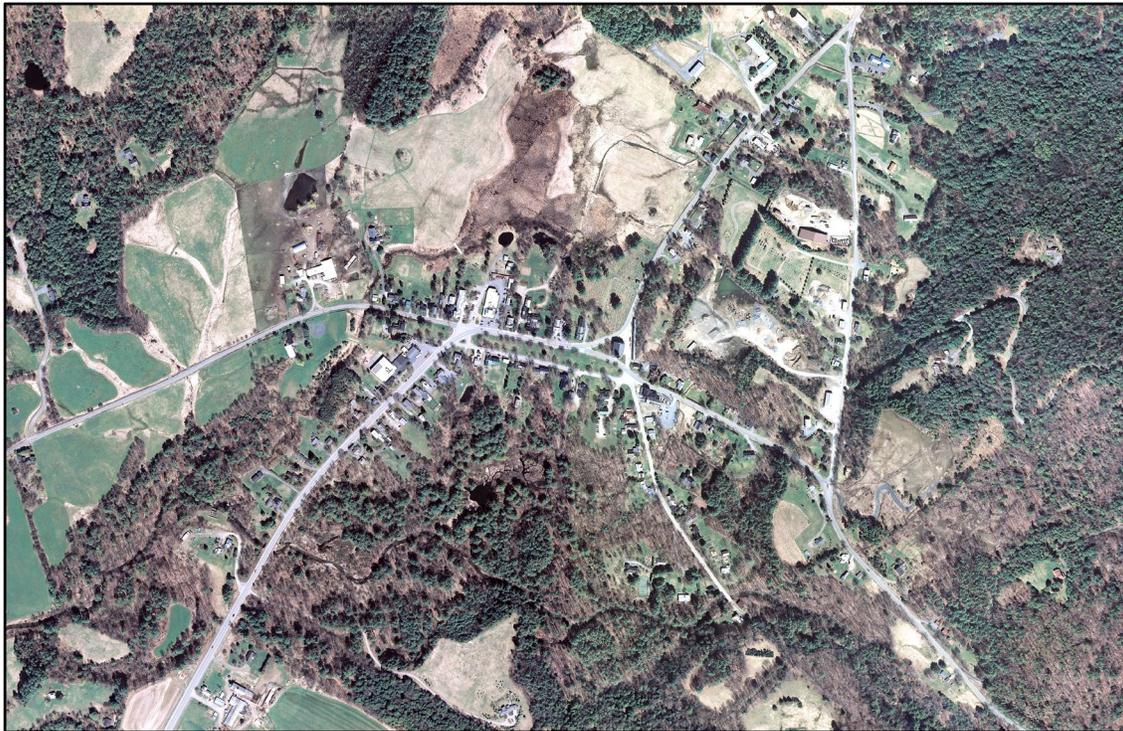


Existing and Future Land Use

Lyme's villages:

Lyme Common and Lyme Center are traditional areas for social and commercial activity. Because of their architectural integrity and the history that comes along with structures that are in some cases over two hundred years old, these villages are listed on the National Register of Historic Places. The villages are popular places to live.

Both villages are busy with people going about their daily lives. The built form of the villages needs to accommodate current and future uses. With a sense of balance and sensitivity, they can continue to serve as Lyme's centers of activity as they have in the past. Keeping the Town's social, business and civic functions in the villages is the key to their vibrancy.



Lyme Common Village Spring 2010

Lyme Common, situated on a flat plain at the crossroads of the Town's two major transportation corridors, was first to develop as a population center. Later, in the early 1800's, Lyme Center located in a narrow section of the Grant Brook valley, began to develop as an industrial and public service center. Fueled by hydropower from Grant Brook, the village provided goods and services to nearby farms. Departures of long standing businesses from Lyme Common resulted in the renovation of the buildings they occupied and they now house Stella's, Lyme Home and Hardware and the renovated Lyme Inn.

Each village has its own identity and each is distinct in its use and nature. Lyme Common is the larger of the two and is home to the most varied land uses in Town. The Town Offices, highway garage and fire station, church, school, post office, inns, professional offices, and general store are all located within the existing settlement pattern around the Common and on the roads leading to the Common. Lyme Center Village is smaller and, while residential uses predominate, the Rich Insurance Agency, the Post Office, the Lyme Center Academy Building, and the First Baptist Church are also located in the heart of the village. Thus, both villages provide a mix of residential, institutional, government and commercial uses.

The investments that have been made in recent years are all good examples of the fine sense of balance and sensitivity that can accommodate change, allowing new or intensified uses while respecting village character. The Lyme Country store was rebuilt after a devastating fire. The Plains school was preserved as part of the school expansion plan. Other examples are: the conversion of Nichols Hardware to Stella's Market and Restaurant; the horseshed renovation; the refurbishment of the Lyme Congregational Church; the accommodation of Fairpoint Communications' switching equipment in a structure that complements the architecture of the Lyme Common; the decision to keep the Town Offices in the Common Area by purchasing and renovating the Recreate Workshop; the renovation of the Lyme Center Academy building for use as a community meeting place and home to the Lyme Historians; and renovation and expansion of the Rich Insurance building as a mixed use commercial property.

Subject to very significant constraints imposed by the necessity of on-site septic systems and the critical importance of the aquifers that underlie the two village areas, future nonresidential growth and higher density residential development should be directed to the two village areas. While both villages may be able to accommodate additional development, each has its own distinct vision for the future arising from highway access, topography and existing land uses. In the future, a mix of uses will be the catalyst for retaining and increasing the vibrancy that exists today in the villages. While both villages should offer a variety of housing options, most office, retail and service uses should be directed to Lyme Common Village.

As preferred by survey respondents, the expansion of the existing village areas should be considered before contemplating locations for new village areas.

Vision for Lyme Common Village:

Lyme Common is envisioned to be a residential and small scale, service-oriented commercial center. It is the logical place for commercial and residential growth given its accessibility, and civic and commercial offerings. A variety of housing options would be available to house people of all ages and households of all sizes. New businesses would meet the needs of Lyme residents, be small scale, provide more opportunity for social interaction, and increase options for commercial activity. Such growth, depending on its extent and intensity, might require a community sewer and / or expanded water system.

Pedestrian travel should be encouraged through the use of appropriately located crosswalks, narrow roadway widths and slow traffic speeds. Development should be kept at a human scale with restrictions on building height and footprint. The upper floors of commercial buildings

should accommodate housing. The Town Offices, school, and post office should remain in Lyme Common Village. Telecommunication facilities should be located out of sight in existing structures. The Common itself will be permanently protected from development. Conservation land surrounding the Village reinforces the sense of place by providing contrast to the developed nature of the Common area and allowing easy access to publicly accessible open space land.

There are at least three areas for possible expansion of the Village: the Britton Lane area, the area south of Grant Brook on both sides of Route 10 and the triangle-shaped area between Route 10 and High Street. Connections may be made to any of these areas using sidewalks, paths and streets.

Vision for Lyme Center Village:

Lyme Center is the smaller and more homogenous village. Its area is small and constrained by the presence of Grant Brook and relatively steep hillsides. While the future vision for this



Lyme Center Village Spring 2010

Village in terms of scale of buildings, treatment of telecommunication facilities and pedestrian accommodation is similar to that for Lyme Common, there are notable differences in size and mix of uses. Lyme Center should have a greater proportion of residential and conservation elements and a smaller commercial sector. Retail and commercial buildings, which by virtue of their parking needs and traffic generation have a greater impact than houses on the surrounding environment, should not be encouraged. Instead, cottage industry should be the predominant commercial format. An array of residential uses, including single-family, multi-family and

accessory dwellings units, should be encouraged here provided they are at a scale and style that is consistent with this small village. Open spaces should be sited to facilitate social interaction and connections between homes and public open space.

Route 10/River Road corridors:

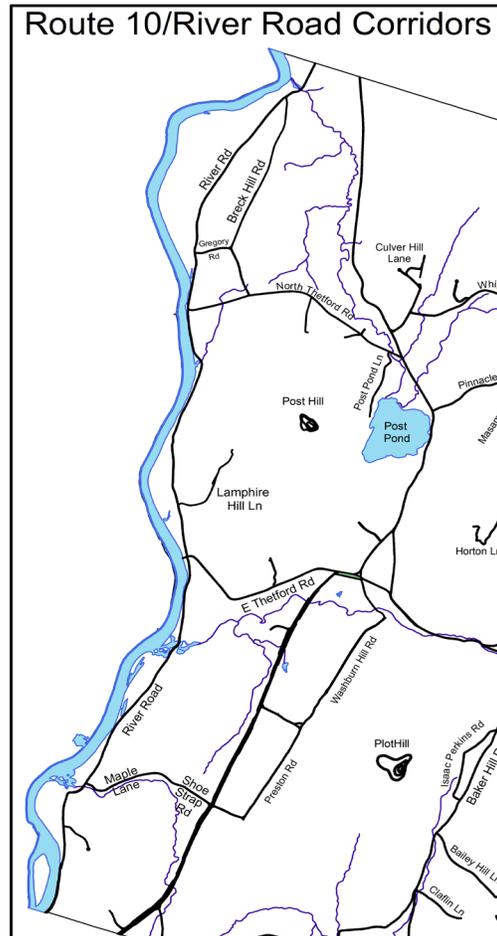
Route 10 is the Town’s largest transportation corridor connecting Lyme with the larger towns to the south and destinations to the north. During the 1960s, Route 10 was widened and rebuilt between Hanover and Lyme. This shortened travel time between the two communities and brought increased residential development pressure to Lyme from the south. The free flowing nature of Route 10 is an asset enjoyed by residents, regular commuters from other communities and transient visitors.

River Road, laid out in some sections just a few feet from the Connecticut River, parallels Route 10 and the River, and provides a continuous, but slower journey from the northern to the southern border of Lyme. With their relatively flat alignments, both roads are favorites of bicyclists.

Much of the area between the Connecticut River and Route 10 remains undeveloped. The relatively low level of development is attributable to the site constraints of the steep slopes of the hills that stretch north and south between Route 10 and River Road. Hewes, Grant and Clay Brooks and their tributaries introduce further constraints. In addition much of the land between the two roads is protected by conservation easements and ownership by conservation organizations and the State of New Hampshire.

Smaller lots with Connecticut River frontage contrast with larger lots that provide for extensive pasture and tilled fields. The continued use of many acres of land for agriculture is a testament to the quality and high value of the soils. North of Lyme Common, there is a more rural appearance with fewer homes and fewer commercial uses. Much of the northern section of Route 10 is narrow and winding, has no shoulders and a rougher surface than the section south of Lyme Common. Similarly, the northern reach of River Road with its unpaved section and covered bridge is slower going than the southern section even accounting for its sharp turns, narrow bridges and wonderful views of the river.

In addition to farms (Bailey, Tullar, Record, Wilmot, Super, Nichols) with most of the Town’s best agricultural land, the Route 10/River Road corridors include residences scattered through



the rural landscape, occasional higher density residential uses such as Pond View Apartments and the Village at Dartmouth College Highway, and a variety of commercial and institutional uses including but not limited to Crossroads Academy, seasonal Christmas tree and turkey sales, farm stands, Lyme Nursery School, Lyme Clinic of Dartmouth Hitchcock Medical Center, several cottage industries, Post Pond recreation area, Loch Lyme Lodge, the offices of Wagner Forest Management, Lyme Green Energy, Tony's Auto Body, and Breakfast on the Connecticut.

Vision for Route 10/River Road corridors:

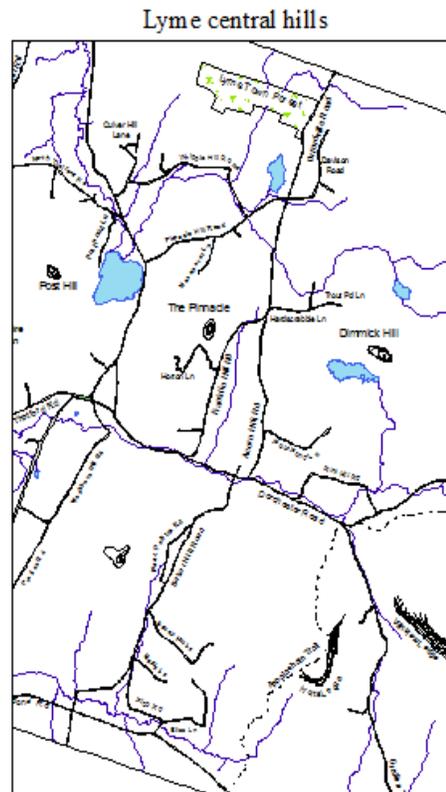
The section of Route 10 north of Lyme Common should retain its agricultural feel. Large pastured and tilled fields with distant views and occasional residences and businesses should distinguish this section from the southern section of Route 10 south of Lyme Common. Along the southern section a mix of single family residences, institutions and businesses would continue to flourish in a low key way. Any new commercial and institutional uses should be low traffic generators in order to help maintain Route 10 as a free-flowing highway. Signage along Route 10 should be modest and carefully regulated so as not to detract from the experience of the rural countryside. Conservation investments along Route 10 should be focused on protecting hillsides and ridgelines, agricultural soils, wetlands, water bodies and their buffers.

The distinctive agricultural nature of River Road should be preserved by permanently protecting land with agricultural soils. Cottage industry, instead of commercial and institutional uses, should be permitted on River Road. Prohibiting new commercial and institutional uses and adding traffic calming measures will keep the road attractive to bicyclists and pedestrians, and maintain its character as a neighborhood road, rather than a major thoroughfare. Public investment could create new recreation areas with access to the Connecticut River. Single family homes should be sited to preserve bucolic views of agricultural fields, the River and ridgelines.

Large commercial telecommunication facilities are not consistent with the rural vision for this part of Town.

Central hills:

East of Route 10 and west of Smart's Mountain, Winslow and Holt's Ledge, lie the Central Hills of Lyme. The mid-section of the Town is punctuated by a number of prominent hills, including Plott Hill, Bailey Hill, Pinnacle Hill, Whipple Hill, Bear Hill, Acorn Hill, and Flint Hill. As a result, the unpaved road system follows irregular topography literally over hill and dale. Some of the most challenging road conditions exist in this section of Town due to topographic conditions, odd intersections, inadequate drainage and seasonally problematic mud. Once off the main paved roads (Route 10, Dorchester Road, Goose Pond Road) land becomes much less easy to access. Due to these access issues and



relatively poor soils, these neighborhoods, once extensively farmed, are now mostly wooded and sparsely developed. Cottage industries are tucked away in residences and few commercial or institutional uses exist. Despite the access problems, a mix of modest homes, refurbished century-old capes and newer estate homes are occupied by people who trade the convenience of a village location for privacy and proximity to nature.

Vision for central hills:

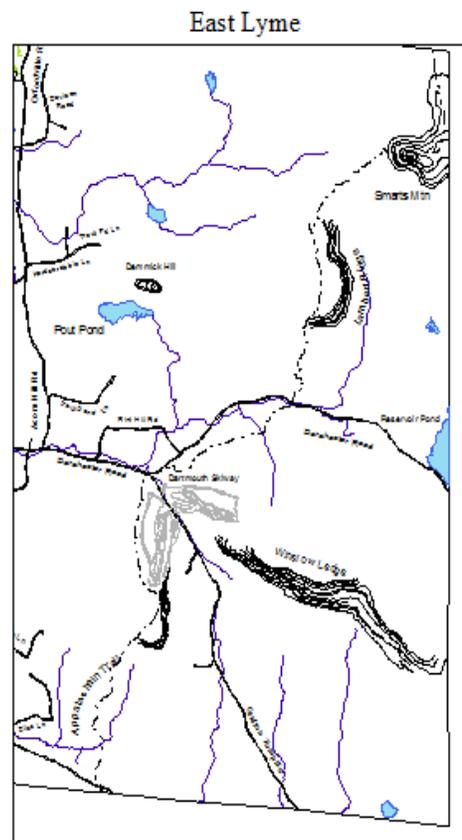
The road system should remain unpaved. Only residences should be built as the road system cannot support institutional or commercial development. Cottage industry should be the only commercial activity except for continued agriculture and forestry. Large, commercial telecommunication facilities are not appropriate for this part of Town.

Conservation investments should be focused on protecting hillsides and ridgelines, agricultural soils, wetlands, water bodies and their buffers and wildlife habitat. Un-fragmented forests should be protected and new homes should be located accordingly. Shorter driveways would enable shorter emergency response times and less disruption to the natural environment. A trail system should connect Class VI roads and publicly accessible open space and provide a recreational amenity for residents and the general public.

East Lyme:

East Lyme is the most rural and the most undeveloped area of the Town. The most notable built feature in this area is the Dartmouth Skiway recreation facility. Prominent natural features include Smart's Mountain, Lambert Ridge, Winslow Ledge, Holts Ledge, Sugar Hill, and Reservoir, Pout and Trout Ponds; the Appalachian Trail, and large tracts of un-fragmented forest providing recreational opportunities, wildlife habitat and open space. This large wild area includes the headwaters of Trout Brook, Grant Brook, Hewes Brook, Jacobs Brook, and portions of the watersheds of Goose Pond and the Mascoma River as well as an important wildlife corridor connecting East Lyme with similar wild lands in Hanover, Canaan, Orford, Dorchester, and ultimately the White Mountain National Forest.

The Town has already taken steps to preserve the East Lyme resource base. Most of this vast area has been zoned for forestry and recreational uses with a minimum lot size of 50 acres (the smallest economically feasible timber investment tract). The development in this area is primarily low density single-family residential. There is also a densely-developed residential area near Reservoir Pond and Canaan Ledge Lane that was established prior



to the adoption of the Town's land use regulations. These existing residences were developed at a density that is inconsistent with the future vision of East Lyme. The Town should consider creating a new zoning district to encompass these areas to ease the zoning restrictions for existing development.

Vision for East Lyme:

This area should remain mostly undeveloped, providing a working landscape for forestry and undisturbed wildlife habitat, and as a wild backdrop for the Appalachian Trail. Low density single-family development that respects the area's natural features would be acceptable to a limited extent, but the primary vision for this area of Town is conservation of the natural environment and sustainable forestry. Large commercial telecommunication facilities and wind farms are not appropriate uses in this area. Both the Skiway District and Mountain and Forest District are appropriate to this vision for East Lyme.

Land use by type:

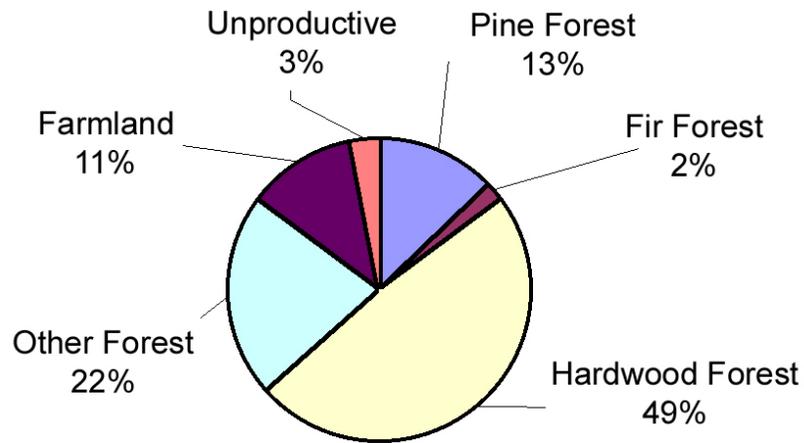
Land use is dynamic with ongoing change as land is conserved, developed, new buildings are constructed and existing land and buildings are converted to new uses. Any description of Lyme's land use is a snapshot at a particular time.

Open space land in current use:

Current use is a statewide program designed to encourage property owners to maintain their land as open space. When land is taxed at its current use value, i.e. its undeveloped value, rather than at "fair market value", landowners can more easily afford to use their land for agriculture, forestry or open space without being forced to sell or develop the land because of high taxes. When land enrolled in the current use program is developed, it no longer qualifies for the current use tax program and a "land use change tax" is levied. This tax is in the amount of 10% of the fair market value of the land as development land. These taxes are transferred to the Town's Conservation Fund for the acquisition of conservation land and easements and to fund the management of the Town's conservation lands.

Land owned by the Town or by Federal and State agencies is not included in the current use category. However, some land owned by not-for-profit organizations, such as the Upper Valley Land Trust and the Society for the Protection of New Hampshire Forests, is. This land might be land that was in current use at the time of its acquisition by the not-for-profit organization, or might be taxable under New Hampshire law because it does not serve the institution's not-for-profit mission.

The chart below shows the percent (based on acreage) of the various current use categories:



Current Use Land by Type, 2008

Much of the current use land in Lyme (63%) has a so called “recreational endorsement” that allows public access to the land for recreational purposes. Such land is assessed at a lower rate than land without the endorsement. If forestland has a management plan approved by a licensed NH forester, it is also assessed at a lower rate than land without a management plan. In Lyme 43% of the forestland has such a plan.

Between 1999 and 2010 a total of 490 acres were withdrawn from current use assessment by the Federal and Town governments (for the Appalachian Trail, the Town Forest and the Trout Pond reservation) and by not-for-profit organizations for conservation purposes. An additional 146 acres were removed for conversion to residential use. The amount of land removed from current use in any given year is variable and unpredictable.

Conserved open space:

See Figure 2-2 on page 2-24 for maps showing the conserved open spaces in Lyme.

The Federal government, acting through the National Park Service, has completed its program for protecting the Appalachian Trail. The National Park Service now owns 3,525 acres in Lyme and holds easements on an additional 192 acres crossed by the Trail. In 1998 the U.S. Forest Service purchased 556 acres under the Forest Legacy Program in order to protect additional lands outside the designated Trail corridor but in the Trail’s viewshed.

The State of New Hampshire’s Wilder Management Area consists of approximately 60 acres on the Connecticut River including 16 acres of marsh purchased in 1964 and 1974 with Sport Fish and Wildlife Restoration funds administered by the US Fish and Wildlife Service. These lands provide habitat for migrating waterfowl.

The Town owns six conservation areas totaling 821 acres. These vary in size from the one acre Hewes Brook Car-Top Boat Launch on River Road to the 385 acre Trout Pond Forest and the 422 acre Town Forest. These lands were acquired between 1977 and 2009 through various combinations of donations, Town Conservation Fund monies and tax deeds.

The Trout Pond Forest is presently protected through a conservation easement. Neither the Chaffee Wildlife Refuge nor the Town Forest is protected.

Four non-governmental conservation organizations own a total of approximately 5,230 acres in Lyme. The four are Bear Hill Conservancy Trust, The Society for the Protection of New Hampshire Forests, The Upper Valley Land Trust and the Montshire Museum. Their land holdings are shown below.

Non-Governmental Organizations' Conservation Land	
Organization	Acres
Bear Hill Conservancy Trust	4,710
Society for the Protection of New Hampshire Forests	272
Upper Valley Land Trust	241
Montshire Museum	7

Note that Bear Hill Conservancy intends to permanently conserve its land through the sale of a conservation easement to the US Fish and Wildlife Service but unless and until an easement is placed on the land, it could be subdivided and developed. Most, but not all, of the land holdings of the other organizations are permanently protected through various funding and other restrictions, including conservation easements.

In addition to the conservation land discussed above, as of January 2011, there were 206 conservation or zoning easements on 10,330 acres. These provide varying degrees of conservation protection ranging from a simple limitation on further subdivision to a prohibition on any additional development. In many cases the restrictions apply only to a portion of the affected lot. The total acres under conservation and zoning easements comprise approximately 30% of the land in Lyme.

Primary Easement Holder	Number of Easements	Acres
Non-Government organizations:		
Connecticut River Watershed Council	22	588
Society for the Protection of NH Forests	19	263
Upper Valley Land Trust	65	3,851

Federal Government:		
Appalachian Trail	6	192
Forest Legacy	5	2,884
State of New Hampshire	4	318
Town of Lyme	82	2,190

Residential Land Use:

Residential land comprises 82% of the developed land and 7.2% of the total land in Lyme. Many of the residential land parcels include undeveloped acreage that is enrolled in the current use program. If this land were considered as part of the lot, residential land use would include 44 % of the total acreage in Lyme

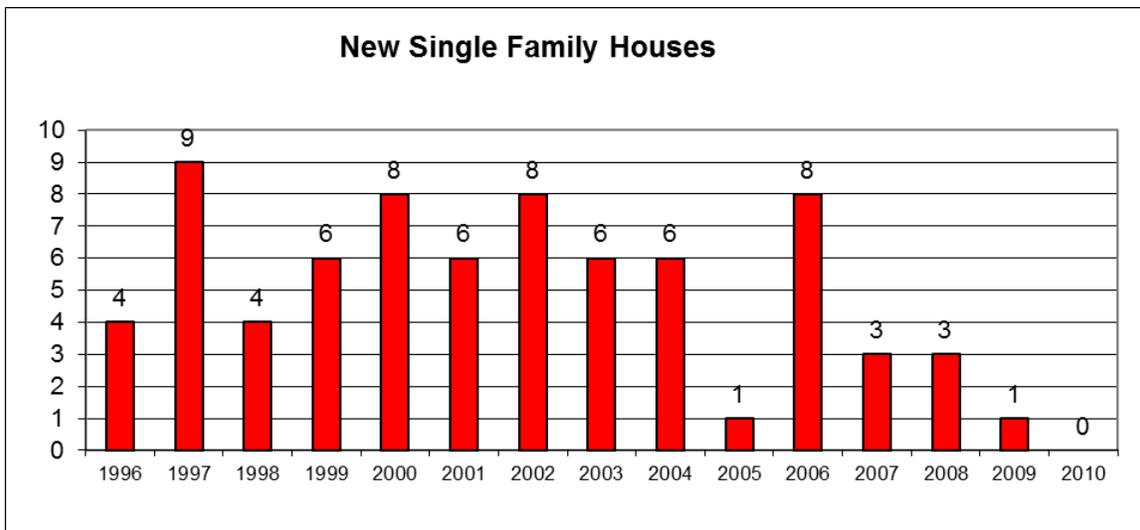
Residential Buildings and Lots as of April 1st 2009			
Description	Lots	Housing Units	Acres
Single-Family Homes	640	646	1,882
Mobile Homes	36	43	150
Two Family Homes	19	38	47
Condominiums	2	29	30
Apartment Buildings (4 or more units)	3	23	16
Vacant Lots (some with improvements)	81		378
Total:	781	779	2,502

Not included in the above table are: three single-family homes on commercial land; one single-family home on government land; eight residential apartments in commercial buildings; and approximately 25 apartments or guesthouses on single-family lots (which may or may not be used as separate housing units).

The table below shows the changes in residential land use (due to new construction or conversion of existing buildings to new uses) that occurred between 1996 and 2010 based on the number of building permits issued:

Building Permits Issued between 1996 and 2010	
New single-family houses	73
Single-family houses replaced by new construction	13
Single-family houses removed	3
Single-family houses converted to two family	1
New mobile homes	2
Mobile homes replaced by single-family houses	4
Mobile homes removed	11
Commercial properties converted to residential use	3

Construction of new single-family homes has had the largest effect on residential land use. The graph below shows the number of building permits issued for new single-family homes between 1996 and 2010.



Institutional land use

Institutional uses take place on land owned by educational, religious or other non-profit organizations. Eight non-profit organizations own developed land in Lyme and four conservation organizations own undeveloped conservation land. Institutions' current use and conservation land is included in the totals for those categories. Institutional growth in Lyme has been very slow.

Educational non-profit organizations:

- Dartmouth College: The Dartmouth Skiway is by far the largest institutional land holding. The property totals 633.5 acres, of which 433.5 acres are taxable and

under current use assessment, 185.4 are tax-exempt as educational recreation facilities (primarily the ski trails on Holts and Winslow Ledges) and 14.6 acres are taxable commercial facilities. In 1998 the College sold 556 acres to the Federal government as a part of the Forest Legacy program. The construction of the McLane Family Lodge in 2001 and a major upgrade of the snowmaking system are examples of recent improvements.

- Crossroads Academy: Crossroads Academy is a K-8 independent school located on 136 acres with a combined student and staff population of up to 220. Major improvements permitted in 2005 included reclamation of the former gravel pit on the property and construction of a new general-purpose building. Planned future improvements include improved access from Route 10 and replacement of one of the classroom buildings.
- Montshire Museum: Montshire Museum owns a seven acre parcel of conservation land on the east bank of Clay Brook just east of the Edgell Bridge.
- Lyme Nursery School: In 2005 the Lyme Nursery School relocated from the Congregational Church parish hall to its new 1.17 acre facility on Route 10 south of Lyme village.

Religious non-profit organizations:

- Benedictine Congregation: The Benedictine Congregation owns a 75.4 acre retreat, of which 38.5 acres are taxable and under current use assessment. The land is located between Flint Hill and Pout Pond Lanes in Lyme Center.
- First Baptist Calvinistic Society: The Lyme Center Baptist Church owns a 61 acre woodlot (which is taxable and under current use assessment) on the Dorchester Road in East Lyme. The church and vestry are situated on 2.8 acres of land in Lyme Center village.
- The Lyme Congregational Church: The Lyme Congregational Church owns 18.42 acres of land, of which 18 acres are the parsonage (included in the residential land totals) and the remaining 0.42 acres includes the church and Lyme House. (The land under the horsesheds is owned by the Town, while the building is owned by the church.)

Conservation organizations:

- Society for the Protection of New Hampshire Forests: Founded by a handful of concerned citizens in 1901, the Society for the Protection of New Hampshire Forests is now one of the country's most effective statewide land conservation organizations. As a non-profit membership organization, the Forest Society is

dedicated to protecting the state's most important landscapes while promoting the wise use of its renewable natural resources.

- Upper Valley Land Trust: The Upper Valley Land Trust provides conservation leadership, tools and expertise to permanently protect working farms, forested ridges, wildlife habitat, water resources, trails and scenic landscapes that surround residential areas and commercial centers and make the Upper Valley a truly special place to live. It works with local conservation commissions and volunteer groups to identify and prioritize land conservation opportunities. It provides technical assistance and conservation solutions for landowners.
- Connecticut River Watershed Council: The Connecticut River Watershed Council works to protect the conservation values of the Connecticut River by protecting its watershed from the river's source in northern new Hampshire to Long Island Sound.
- Bear Hill Conservancy Trust: Bear Hill Conservancy Trust is a charitable trust that focuses on land conservation and habitat management.
- Montshire Museum: The Montshire Museum of Science, located in Norwich, Vermont, is focused on nurturing an interest in the natural and physical world with an emphasis on children.

Other non-profit organizations:

- PathWays. The in-patient facility is situated on an 8.97 acre campus just north of Lyme Common Village on Route 10.
- American Legion: The James H. Young Post 80 of the American Legion is located on 1.85 acres on top of the hill behind the horsesheds in Lyme Common village.

Government land use

Most of the land owned by governmental entities is conservation land. The next largest government use of land is the rights-of-way of the State and Town roads. In most cases these are only viatic rights-of-way and neither the State nor the Town owns the land under the road. All of the Federal land in Lyme is conservation land associated with the Appalachian Trail. Post offices are situated in commercial buildings in both villages. State and local government land, other than conservation land, is discussed below.

State of New Hampshire:

- The State highway garage between the Town's fire station and highway garage on High Street occupies 1.96 acres.

- The State park-and-ride lot in Lyme Common Village is on a 0.63 acre parcel between the Mascoma Bank building and Stella’s restaurant.
- The State owns two small remainder lots associated with road relocations and a 3.8 acre lot south of Post Pond that was a rock quarry used in reconstruction of Route 10.

Lyme School District:

- The Lyme Elementary School is located on 6.8 acres on Route 10 in Lyme Common Village and includes the school buildings, playground and two small playing fields.

Town of Lyme:

- Parks and Recreation: The 11.8 acre Chase Beach recreation area on Post Pond includes a boat launch facility, the John Balch playing field, the town beach, the tennis/basketball courts and an informal hockey “rink”. The Lyme Common (and “little” Common) in Lyme Common total 1.78 acres, and the Town has two boat launch facilities, one on Hewes Brook at River Road and one on Reservoir Pond.
- Cemeteries: The Town has five cemeteries, one of which is on land owned by the Upper Valley Land Trust. Of these, only the 6.57 acre Highland Cemetery is available for new burials.
- Highway Garage and Transfer Station: The highway garage and transfer station is located on a 3.47 acre lot on High Street.
- Town Offices: In 2008 the Town purchased a 3.11 acre commercial property at the corner of High Street and Route 10 for the new town office and police station. The facility was completed and occupied in June of 2009. The lot also includes a single-family house that is rented by the Town as a private residence.
- General town facilities: the Lyme Center Academy Building on 1.3 acres in Lyme Center Village, the fire station on 1.28 acres on High Street, the Converse Library on 0.44 acres across Route 10 from the School, and the land under the Horsesheds and Jail (0.23 acres) on John Thomson Way.
- Undeveloped Land: The Town owns seven parcels ranging in size from 0.54 acres to 16 acres. The two largest are an 8.8 acre ravine between Route 10 and Clay Brook and the 16 acre cul-de-sac at the end of Canaan Ledge Lane.

Commercial and industrial land use

Commercial and industrial land does not include the current use land associated with businesses, but it does include the taxable portion of the Dartmouth Skiway. Most of the cottage industries in

Town are included as residential land, but those that have a distinct commercial nature are considered commercial properties.

Lodging:

- Loch Lyme Lodge owns 121 acres of which 105 acres are in current use. It is located on the southeast shore of Post Pond along Route 10.
- Breakfast on the Connecticut owns 22.56 acres of which 16 acres are in current use. It is located on River Road north of the North Thetford Road on the Connecticut River. The property also includes a single-family house.
- Dowds' Country Inn (5.4 acres) and the Lyme Inn (1.0 acre) are both located in Lyme Common Village along the north and east sides of the Common respectively.

Industrial:

- Gravel Pits: The Derby Mountain Construction gravel pit (10 acres) located between High Street and Route 10 is now used only as a staging area for excavation contracting in the Upper Valley. The Ryan gravel pit (5.3 acres) is located between Whipple Hill Road and Route 10.
- Warehouses: The former Green Mountain Studio (now Tarm USA) and Tuckaway Timber (now Bayson Company) warehouses are both located on Britton Lane on 5.3 and 4.2 acre lots respectively.

Commercial:

- Lyme Common Village: There are nine commercial properties in Lyme Common Village: Dowds' Inn, Lyme Inn, three office buildings, the Lyme Country Store, Stella's (restaurant, bank, Post Office, apartments, professional offices, hardware store) the Mascoma Bank Building (bank, apartments, professional offices, hair salon, Long River Studios), Lyme Veterinary Hospital and Veraka's Auto Service occupying a total of 13.71 acres of land.
- North of Lyme Common Village: There are a number of commercial properties on Route 10 north of the village including Tarm USA, Bioheat, Wagner Forest Management (2.2 acres), Estes & Gallup Builders (1.3 acres) Lyme Green Heat, Bailey Construction and Tony's Auto Body (1 acre). In addition there is one commercial property on Pinnacle Road: A. W. Pike Contracting (1 acre).
- South of Lyme Common Village: There are several commercial properties on Route 10 south of the village including: The Dartmouth Hitchcock Clinic on

Route 10 (5.9 acres) Derby Mountain Construction, (5 acres) Pond View Apartments, (52 acres).

- Lyme Center Village: The Everett B. Rich Insurance Agency is the only commercial property (0.59 acres) in the Village.

Land Use Trends

Assuming that the regulatory climate remains the same and the current economic conditions improve, development over the intermediate term is expected to follow the trends of the last ten years.

Conserved open space

- There will be additions to the conservation land base through conservation easements and acquisitions.
- The Federal government has completed the protection of the Appalachian Trail corridor in Lyme. A 110 acre segment of the Trail is protected only by an easement and the government would like to acquire outright ownership of these 110 acres. Whether Federal funds will become available to purchase this land in the future is unknown.
- It is unlikely that the State will purchase or otherwise acquire any conservation land in addition to its Wilder Management Area.
- The Town can be expected to acquire additional conservation land with Conservation Fund monies from the land use change tax and/or donations. The timing and extent of land to be so acquired is unpredictable.
- The current trend for non-profit conservation organizations is to acquire conservation easements rather than purchase land in fee. With the exception of land having unusually important conservation values, it is not expected that such organizations will acquire significant additional conservation lands in the future.

Open space land in current use

- The land in current use assessment will change as new areas are enrolled in the program and existing areas are developed and consequently disqualified.

Residential land

- Currently there are 81 residential lots in Lyme that are either partially developed (without a housing unit) or undeveloped. Some of these may not be developable due to access, terrain or wetlands issues.

- In the past ten years, five residential lots were removed from the inventory of undeveloped lots through mergers or conversion to commercial use and thirty were added by withdrawals from current use.
- Between 1999 and 2010 building permits were granted for a net increase of 56 residences. Even though there are more undeveloped or underdeveloped residential lots than needed to support this level of new construction over the next ten years, it is likely that additional lots will be created by withdrawals from current use.

Institutional lands

- Between 1999 and 2010, Lyme Nursery School was the only new institutional property.
- Institutional land does change hands. For example, in 2006 the Congregational Church, through a lot line adjustment, sold its 12.55 acre woodlot to the adjacent residential property owner and the Benedictine Congregation transferred 12.2 acres to a new residential lot in 2005.
- Dartmouth College sold 556 acres to the Federal Government as a part of the Forest Legacy program.
- Future additions to or sales of institutional land holdings cannot be predicted.

Government Land

- The Federal land acquisition of 556 acres from Dartmouth College and the Town's purchase of a 3.11 acre commercial property in 2008 for its new town offices and police station are recent changes to land in governmental use.
- Additional land may be required for cemetery space, recreational playing fields, possible expansion of the elementary school, replacement of the fire station or an expanded or relocated transfer station, but none of these projects is likely to take place in the next ten years.

Commercial land

- Between 1999 and 2010 two new cottage industries were approved: a day care facility in the former New Canaan Academy (2001) and a woodworking shop (2007). Both of these retained the residential character of the properties and so are listed as residential properties.
- Site plans were approved for a change in use of the former Green Mountain Studios warehouse on Britton Lane in 2005, conversion of the former Nichols Hardware to Stella's restaurant in 2007 and major renovation of the Lyme Inn in 2008.

- New commercial uses should continue to locate in Lyme Common.

Agricultural land

- The existing agricultural land will likely remain in some form of agricultural production but dairy use will likely decline and be supplemented by other uses.

Expected land use changes

Under our present land use regulations and given the current state of the economy, Lyme can reasonably expect the following changes during the next ten years based on recent trends:

- a small average annual increase of new homes with a corresponding minor impact on municipal services including school, fire, police and roads,
- a decrease in the amount of land in current use,
- a slight increase in governmental and institutional development, and
- a small increase in residential-based cottage industries and new small businesses in Lyme Common Village.

Development Capability

Development in Lyme has shown that some areas are naturally better suited for a particular use than others. If Lyme is to protect its natural resources and provide a high quality of life for its citizens, the capability of Lyme's natural resources to accommodate development must be respected. The land use recommendations in this plan are based on the premise that Lyme's natural heritage should be preserved and future development of the Town be guided by the ability of the land to support it.

Recommendations:

The Planning Board should:

- Continue to support and encourage agricultural uses to maintain and enhance the Town's rural character. Such uses will include appropriately scaled accessory retail uses including farm stands.
- Continue to include cottage industry and home occupation as a way to accommodate business use in an unobtrusive way across Town.
- Explore reasonable and realistic opportunities for senior, work force and affordable housing.
- Consider recommending changes to the Zoning Ordinance to:
 - Accommodate infill development in the villages
 - Enlarge Lyme Common Village Zoning District to accommodate additional growth if and when the current zoning boundaries become too restrictive.
 - Explore ways to make conformance with the ordinance easier for existing residences in the already densely developed reservoir pond and Canaan ledge area. A new zoning district should be created to meet that goal.
- Carefully protect the remaining rural character of Route 10 as a scenic gateway to Lyme Common Village and protect against its change to a commercial strip or to a collector for suburban residential access roads.
- In concert with the Conservation Commission, encourage land owners to enroll and maintain their land in the current use program and to grant conservation easements to permanently protect their land from development.
- Continue to carefully review site plans to ensure that approvals mitigate negative impacts of commercial development and to prohibit inappropriately scaled and designed commercial enterprises.
- Periodically review the uses allowed in the Town's various zoning districts with a view to proposing appropriate changes for adoption at Town meeting.
- Work in concert with the Budget Committee and Selectmen to manage growth so that negative fiscal impacts and burdens on town services and facilities are minimized.
- Collaborate with the Selectboard to identify the best locations for future community facilities.

- Together with the Conservation Commission develop a conservation investment strategy to protect special places and natural features.
- Join with Lyme Historians and the Heritage Commission in promoting the preservation of Lyme's historic qualities.
- Undertake community attitude surveys and master plan updates every five to ten years.
- Periodically review the New Hampshire Department of Environmental Services handbook "Innovative Planning Techniques" for approaches that might be adopted by the Town to mitigate the strains that additional residential growth will otherwise have on municipal services and the Town's character.
- Review all Town land use regulations so as to:
 - Ensure that submission requirements for application requirements are reasonable and not excessive.
- Continue to propose land use controls to:
 - protect Lyme's natural resources.
 - mitigate negative impacts on natural systems.
 - guide development at the appropriate time to appropriate locations based on the vision for each area of Town.
 - implement "Smart Growth Practices"
 - limit the scale of development to be consistent with the capability of the land to support it and with the desire of residents to maintain the Town's rural character.
 - conserve the Town's resource base for agriculture and forestry and protect large un-fragmented land areas for recreation, wildlife habitat and the protection of water quality and supply.

Figure 2-1 - Original Town Plan

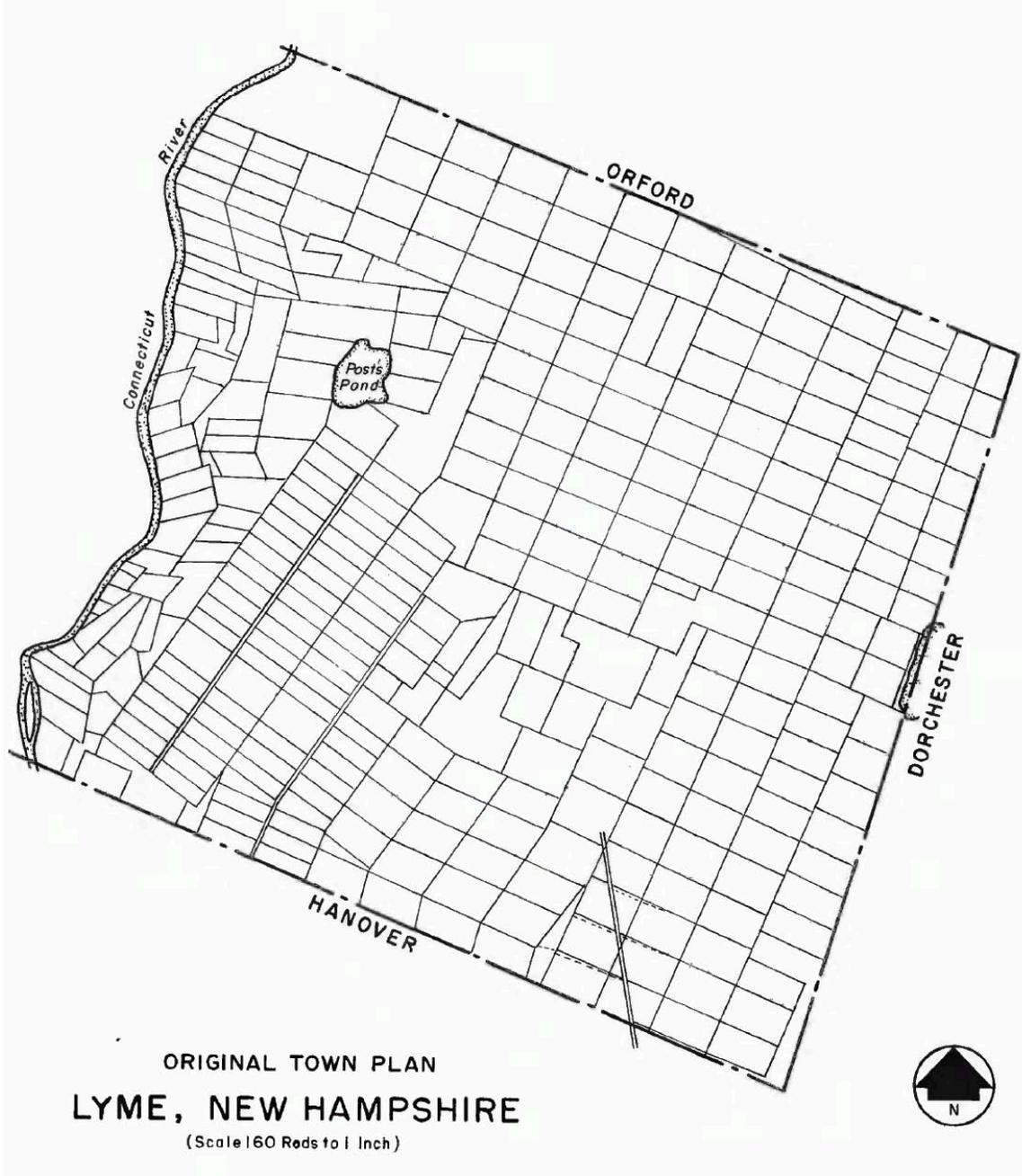


Figure 2-2
Conservation Land

Parcels owned by governmental agencies and non-governmental agencies for conservation and/or scientific purposes and parcels having conservation easements.

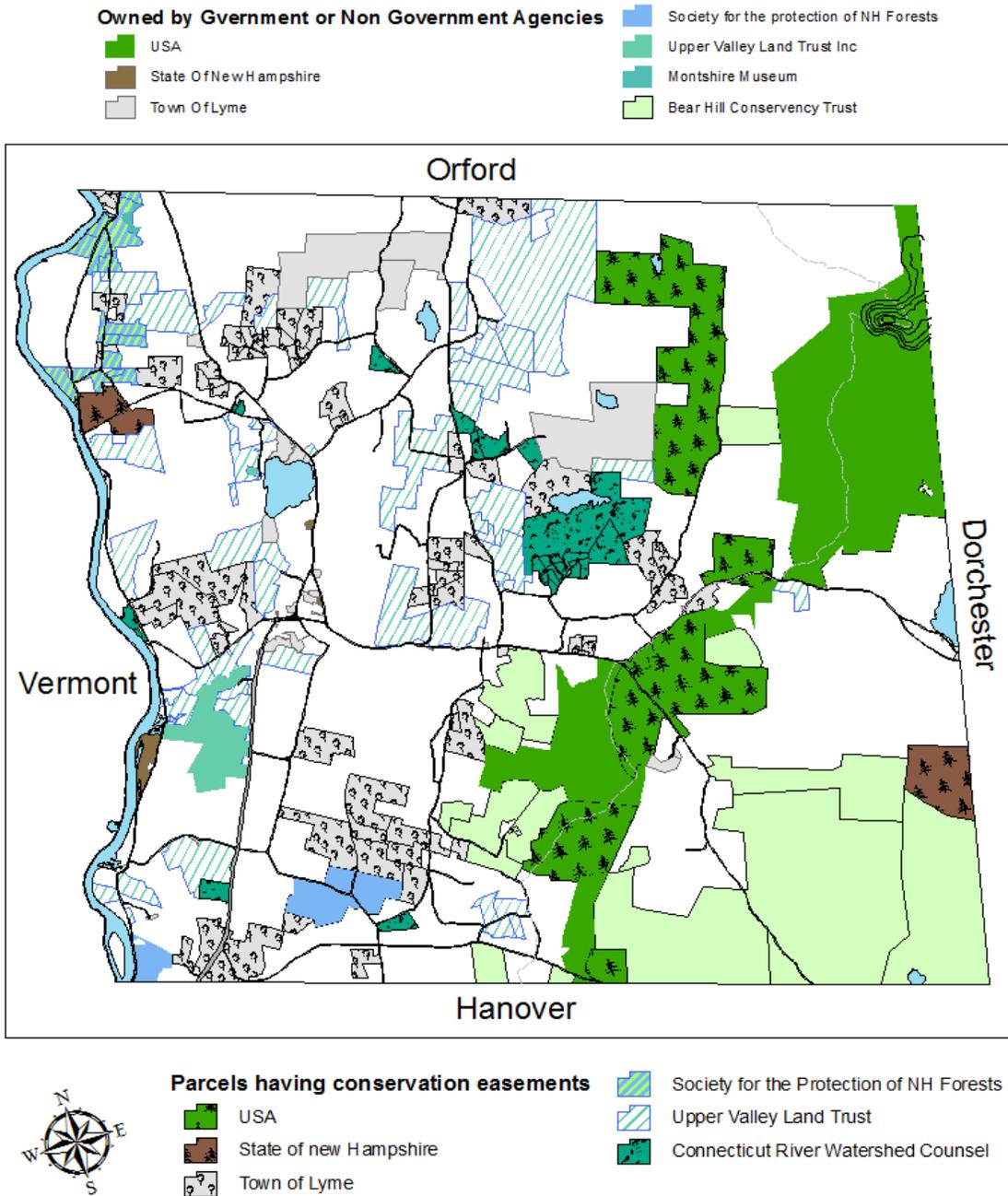
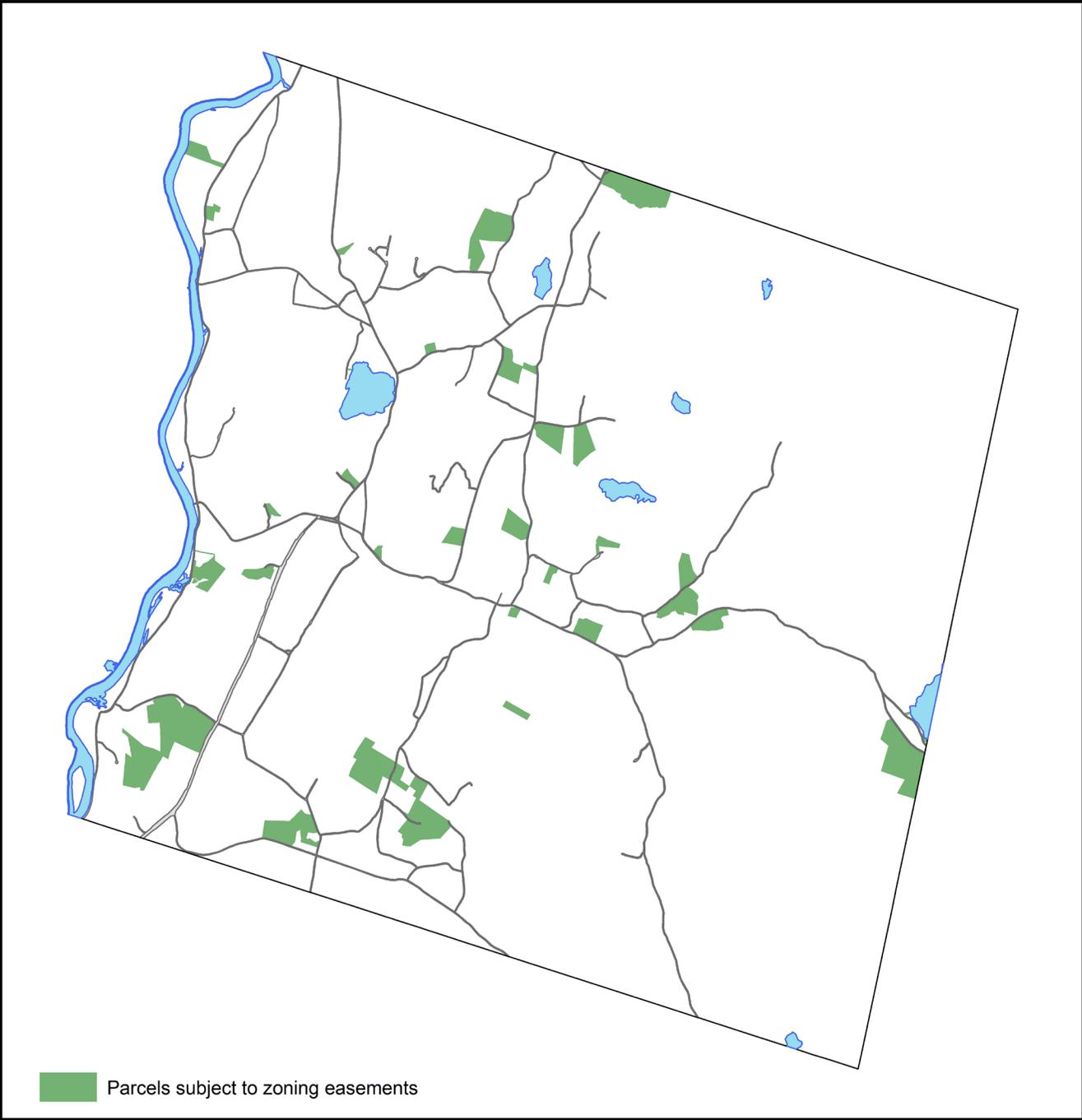


Figure 2-3 Parcels subject to zoning easements



Chapter 3 -Transportation

Transportation infrastructure and resources have a major influence on land use and development. With the building of the Grafton Turnpike in the first decade of the nineteenth century, the village at Lyme Plain grew to support the stagecoach traffic from Concord to the county seat in Haverhill. Lyme's population peaked in 1830 and then, with the decline of the hill farms, decreased for almost a hundred years. Many former roads, primarily in the eastern part of the Town and on Plott Hill, were no longer maintained. Then with the advent of the automobile, roads were paved connecting Lyme to Hanover and Lebanon, the population increased, and Lyme changed from a community of small farms to primarily a residential community. This change led to major improvements to Route 10 south of the Common in the 1950's and 1960's, connecting Lyme with the region's major employment and commercial centers thus furthering Lyme's growth and adding to the Town's desirability for residential development.

Because of the strong interaction between transportation, development and land use, it is impossible to separate most transportation issues from the community's overall desires for the town.

Highways

From the layout of the original River Road connecting Springfield, Massachusetts with Haverhill as a military highway during the French and Indian Wars (1754-1763), Lyme roads generally followed the existing topography with little regard for the needs of today's automobile and truck traffic. As a result many do not meet the state's design standards for rural streets. Maximum grades over 10%, traveled ways less than 20 feet wide, dead-end roads over 1,000 feet long without adequate turn-arounds and unpaved surfaces for roads with over 50 vehicles per day are common. Meeting the recommended state road standards is inconsistent with preservation of Lyme's rural character and the maintenance of a road system that limits traffic, speed and potential growth.



The State classifies all public highways into one of seven classes. Within the Town of Lyme, there are only the four classes described below:

- Class I highways shall consist of all existing or proposed highways on the primary state highway system. In Lyme this includes only NH Route 10.
- Class II highways shall consist of all existing or proposed highways on the secondary state highway system. In Lyme this includes: the East and North Thetford roads, High Street, Dorchester Road to the Skiway, On the Common and John Tomson Way.
- Class V highways shall consist of all other traveled highways which the town has the duty to maintain regularly and shall be known as “town roads”.
- Class VI highways shall consist of all other existing public ways, and shall include all highways discontinued as open highways and made subject to gates and bars, and all highways which have not been maintained and repaired by the town in suitable condition for travel thereon for 5 successive years or more. An example in Lyme is Mud Turtle Pond Road.

There are currently 67.2 miles of publicly maintained roads in Lyme, 5.5 miles of privately maintained roads and 35.2 miles of closed or discontinued roads.

Miles of Lyme Roads					
Class	Description	Publicly Maintained		Privately Maintained	Not Maintained
		Paved	Gravel		
I	Primary State Highways	8.0			
II	Other State Highways	7.4			
V	Town Highways	12.0	39.7		
VI	Roads Closed Subject to Gates and Bars / Emergency access lane			0.5	9.0
	Private Roads			3.0	
	Discontinued Roads			2.0	26.2
	Total Miles	27.5	39.7	5.5	35.2
Source: NH Department of Transportation and Town of Lyme					

Scenic roads and byways

State law provides that the Town may designate any road, other than a class I or class II highway, as a scenic road. The major effect of being designated a scenic road is that “any repair, maintenance, reconstruction, or paving work done with respect thereto by the state or municipality, or any action taken by any utility or other person acting to erect, install or maintain poles, conduits, cables, wires, pipes or other structures shall not involve the cutting, damage or removal of trees, or the tearing down or destruction of stone walls, or portions thereof, except with the prior written consent of the planning board after a public hearing”. The table below lists Lyme’s scenic roads.

Scenic Roads	
Acorn Hill Road	Entire road
Breck Hill Road	Entire road
Highbridge Road	Entire Road
Orfordville Road	From Pinnacle Road to 50 feet south of Upper Stonehouse Mountain Road
Pico Road	Entire road
River Road	From East Thetford Road to the Orford Town Line
Washburn Hill Road	Entire road

Route 10 is part of the State designated Connecticut River Byway that runs on both sides of the river in New Hampshire and Vermont. In 2005 this was designated a “National Scenic Byway” by the Federal Highway Administration. This designation places no restrictions on the highway, but is meant to encourage appreciation of the historic, agricultural, natural and scenic values of the area.

Intersections

Many intersections in Lyme have design deficiencies affecting safety and the potential for additional traffic.

Intersection	Issues
Dorchester Road and Route 10	sight distance north of intersection angle <60 ⁰ to north
High Street and Dorchester Rd	sight distance north and east of intersection curb cut at intersection
North Thetford Road and Route 10	sight distance north of intersection
Franklin Hill and Dorchester Roads	sight distance in all directions grade of Franklin Hill Road

Goose Pond and Baker Hill Roads	sight distance north and south grade of Baker Hill Road
East Thetford and River Roads	sight distances

Traffic

Both the Town and State collect traffic volume data on many of Lyme’s roads. Traffic generally increased in the 2002 through 2004 period, but has decreased recently on most roads. This recent trend may be a result of recent large increases in energy costs and may not represent a long-term trend.

One must also consider the accuracy of the data in reaching conclusions. Traffic counts represent the average over a one-week period (generally in April and May), can be distorted by a single large event (particularly in cases of small numbers), don’t account for seasonal variations, temporary or permanent road closures, and may also include an indeterminate counter error.

- Traffic on the Dorchester Road has an extreme seasonal variation. The Dartmouth Skiway may more than double the traffic volume during the alpine skiing season. Cross country skiing in Dorchester increased one Saturday’s traffic volume from a “normal” of less than 100 vehicles per day to 581 east of the Appalachian Trail.
- The temporary closure of Goose Pond Road between Route 10 and Rennie Road in the fall of 2010 diverted over 1,000 vehicles a day onto Baker Hill and Goodfellow roads.
- The permanent closing of Shoestrap Road as a through street in 2006 has changed the traffic patterns on River Road between the Hanover Town Line and East Thetford Road.

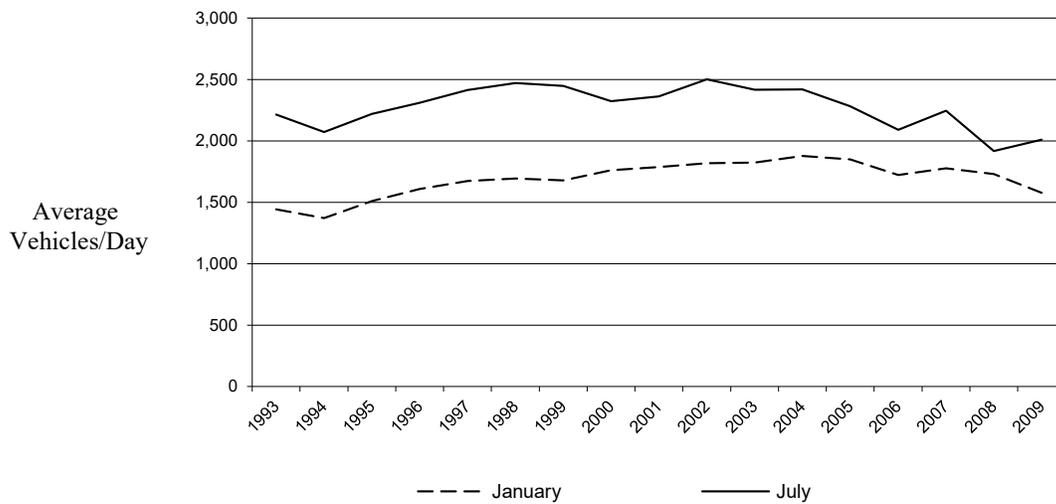
The table below shows the traffic volume on roads with over 1,000 vehicles per day. The tables listed in Appendix B, beginning on page B-1 include traffic volume data for all of Lyme’s roads for which data are available.

Roads With Traffic Volume Over 1,000 Vehicles per Day							
Year	Route 10 (at Hanover Town Line)	Route 10 (over Grant Brook)	E.Thetford Road (at Vermont State Line)	Route 10 (north of N.Thetford Rd)	Route 10 (at Orford Town Line)	Goose Pond Rd (RT10 to Rennie Rd)	Dorchester Road (west of Franklin Hill Rd)
1997	3,200			1,991		1,100	
1998		3,600	2,200	2,059	2,000		
1999	3,400			2,050			
2000				2,010		1,100	

2001	3,300	3,400	2,800	1,984	1,900		
2002				2,058			
2003	3,600			2,004		1,000	
2004		3,500	2,500	2,074	2,200		
2005				1,997			
2006	3,100			1,868		1,100	
2007		3,300	2,300	1,979	2,100		
2008				1,900			
2009	2,800			1,750		1,200	
2010		3,200	2,500	1,759	1,700		1,100
6-Year Change	- 22.2%	-8.6 %	0.0 %	-1.5 %	-3.7 %	20.0 %	n.a.
Source: NH Department of Transportation							

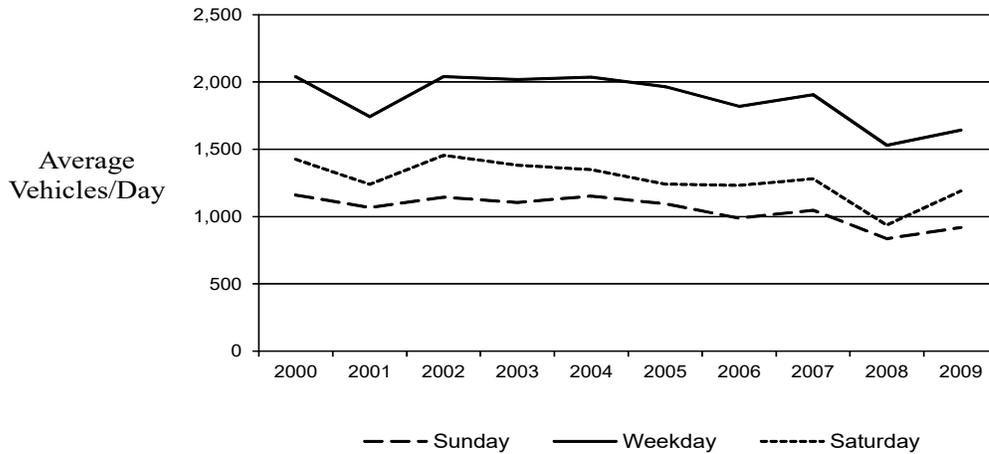
An accurate continuous history of traffic on Route 10 north of the North Thetford Road, collected by the state Department of Transportation, shows that, at least on this section of Route 10, there is a seasonal increase in traffic during the summer.

Traffic on Route 10 north of the North Thetford Road



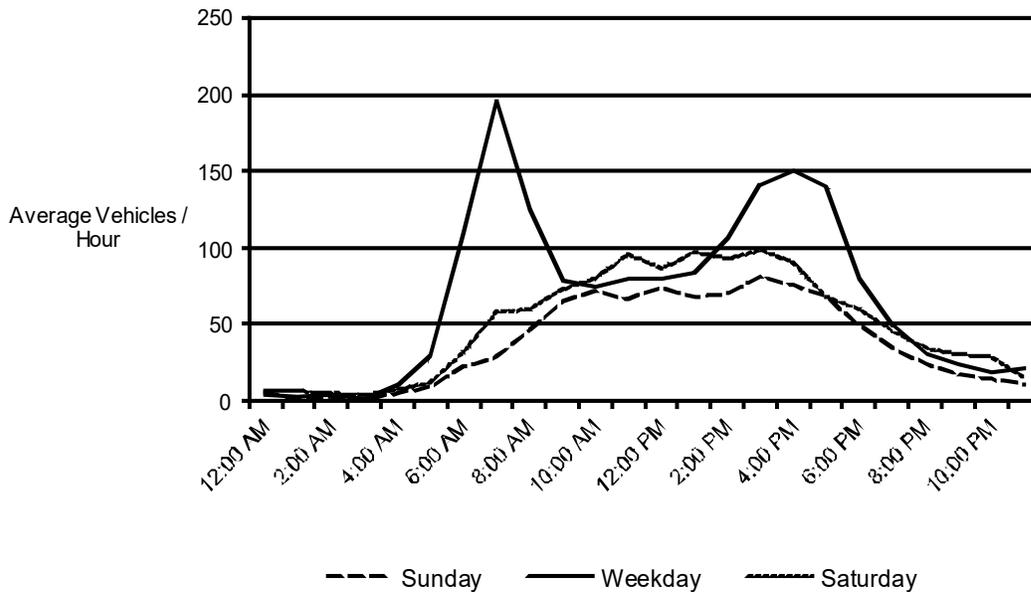
These same data show a difference of approximately 600 vehicles per day between weekdays and Saturday and Sunday.

Traffic on Route 10 north of the North Thetford Road in March



These same data show the variation in the hourly traffic. The effect of commuter traffic is clearly shown in the weekday data for the morning and evening “rush hours”.

Hourly traffic on Route 10 north of the North Thetford Road in March 2009



Bridges and Culverts

There are eight state and eleven town maintained bridges. All of these are periodically inspected by the Bureau of Bridge Design of the NH Department of Transportation. Bridges that require more frequent inspections are included on the so-called “redlist”. The “redlist” does not mean



that the bridge is unsafe or that repairs are needed. For example, an historic bridge, such as the Edgell Covered Bridge, will always remain on the “red list”.

In addition to whether they require more frequent inspections, bridges may be deemed “functionally obsolete” and/or “structurally deficient”.

- A “functionally obsolete” bridge is one that was built to standards that do not meet the minimum federal clearance requirements for a new bridge. They include those that have sub-standard geometric features such as narrow lanes, narrow shoulders, poor approach alignment that restricts sight distances, and inadequate vertical clearance. These bridges are, however, not inherently unsafe.
- Bridges are classified as “structurally deficient” if they have a poor general condition rating for the deck, superstructure, substructure or culvert. Examples of poor condition include corrosion that has caused significant section loss of steel support members, movement of substructures, or advanced cracking and deterioration in concrete bridge decks.

State Maintained Bridges		
Description	Length	Remarks
Route 10 over Hewes Brook (#041/074) (2.89 miles south of the Common)	28'	Not Deficient

Route 10 over Grant Brook (#075/106) (0.35 miles south of the Common)	30'	Not Deficient
Route 10 over Trout Brook (#089/144) (1.80 miles north of the Common)	28'	Not Deficient
Dorchester Rd over Grant Bk. (#096/100) (0.73 miles east of Route 10)	45'	Not Deficient
Dorchester Rd over Grant Bk. (#102/099) (1.10 miles east of Route 10)	41'	Not Deficient
Dorchester Rd over Grant Bk. (#118/095) (1.89 miles east of Route 10)	25'	Not Deficient
E. Thetford Rd over Conn. R. (#053/112) (1.47 miles west of Route 10)	471'	Functionally Obsolete Red List Programmed for repair in 2017
N. Thetford Rd over Clay Bk (#085/147) (0.09 miles west of Route 10)	14'	None

Town Maintained Bridges		
Description	Length	Remarks
Baker Hill Rd over Grant Bk (#112/093) (0.05 miles south of Dorchester Road)	20'	2011 Good
Flint Hill Rd over Grant Bk (#127/094) (west end)	19'	2011 Fair
Flint Hill Rd over Grant Bk (#141/094) (east end)	19'	Serious Scheduled for repair 2013-2014
Goose Pd Rd over Hewes Bk (#054/051) (0.10 miles east of Route 10)	15'	Very Good *Repaired 2011
Goose Pd Rd over Hewes Bk (#055/048) (0.41 miles east of Route 10)	15'	Very Good *Repaired 2011
Highbridge Rd over Trout Bk (#119/141) (0.55 miles south of Pinnacle Road)	12'	Satisfactory
Market St over Grant Bk (#084/105)	28'	Structurally Deficient

(0.28 miles south of Route 10)		
Pinnacle Rd over Trout Bk (#113/147) (1.65 miles east of Route 10)	19'	Municipal Redlist Scheduled for repair 2013-2014
River Rd over Hewes Bk (#041/074) (2.12 miles south of East Thetford Road)	28'	Municipal Redlist 2011 Scheduled for repair 2013-2014
River Rd over Grant Bk (#056/099) (0.74 miles south of East Thetford Road) Fisher Bridge	37'	Functionally Obsolete Scheduled for repair 2013-2014
River Rd over Clay Bk (#069/190) (4.25 miles north of East Thetford Road) Edgell Covered Bridge	149'	Historic Bridge Repaired 2012

The NH Department of Transportation’s revised “2009-2018 Transportation Improvement Plan” includes a \$ 4.428 million rehabilitation of the East Thetford Road Bridge over the Connecticut River. Engineering and design are scheduled for 2014 and construction in 2017.

Pedestrian and bicycle paths

Neither the 1974 nor the 1981 *Community Attitude Surveys* mentioned pedestrian or bicycle paths. In the 2006 *Survey* the need for pedestrian and bicycle lanes on Route 10 was mentioned by 1 person and a walking/bike trail from Lyme Common to Post Pond was favored by 14 people and opposed by 5 people. Although these numbers are small, more people mentioned them than any other write-in remarks.

Currently there are no sidewalks (except a short section connecting the school and library) nor any designated bicycle lanes. The paved shoulders on Route 10 south of the Common and a short section south of the Orford town line provide the only pedestrian or bicycle “lanes” outside the traveled-way on Lyme roads.

In the 1990s, the NH Department of Transportation conducted a preliminary planning study of the possible widening of Route 10 north of the Common to include paved shoulders and the acquisition of the required additional right-of-way. A public hearing was conducted in Lyme before an overflow crowd that strongly opposed the proposal. As a result of this hearing, the proposed project was dropped.

Since then there have been several attempts to acquire a right-of-way and construct a pedestrian/bike path between the Lyme Common area and the Post Pond recreation area. These efforts have failed because of the inability to find a suitable route (due to the Old Cemetery, wetlands and/or topographic restrictions), obtain the necessary right-of-way easements or identify funding for construction and continued maintenance. None of these efforts proceeded past the conceptual planning stage. Following recent forums there is renewed interest in creating a safe route for pedestrian and bicyclist.

Carpooling

In the 2006 *Community Attitude Survey* 31% of the respondents indicated that they worked in the Hanover/Lebanon area, but only 12% said they carpoled. In responding to the question “Should the Town encourage more carpooling or public transportation?” 64% said yes.

The State has a small park-and-ride lot located between Stella’s and the Mascoma Bank in Lyme Common village. Although it is often full during the day and on evenings, parking spaces are usually available at the time people would be going to work in Hanover or Lebanon.

Advance Transit operates Upper Valley Rideshare, a free carpool matching service. This service provides commuters who are interested in carpooling with a “match list” of others who have similar commuting patterns. In addition, new “real time” carpool applications for “Smart” phones are becoming available and are expected to be used more frequently during future gas price “spikes”.

Rideshare and carpooling were popular topics at recent forums.

Public Transit

The *1985 Master Plan* recommended continuing the subsidy to Advance Transit to provide public bus service to Lyme and Lyme Center. This service was discontinued in 1995 due to the lack of patronage and the requirement for additional matching funds for Federal grants for operations and new buses

The two public bus stops closest to Lyme are located at CRREL (north end of Hanover) and at the park-and-ride lot at the East Thetford exit from I-91. Advance Transit’s Brown Route currently provides Monday through Friday service to the CRREL bus stop at approximately half hour intervals from 6:43 AM to 5:18 PM. Stagecoach Transportation’s River Route provides three morning southbound and three evening northbound stops for commuters at the East Thetford Park-and-Ride lot.

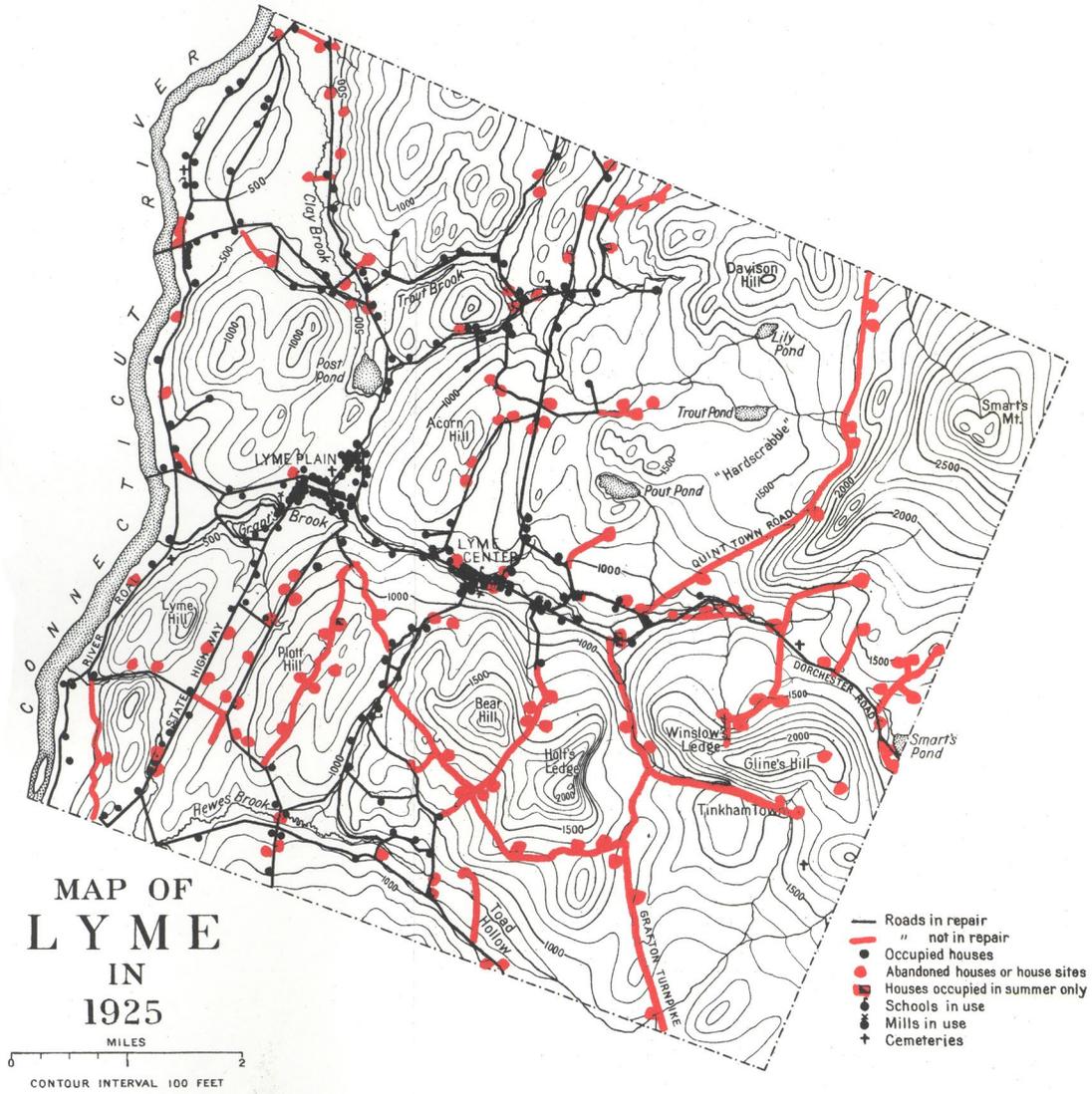
The Grafton County Senior Citizens Council provides limited demand response door-to-door transportation to medical appointments, shopping centers, senior centers and other services. In addition, “Those Guys”, a Lyme volunteer services organization, provide similar transportation services.

Recommendations

- In order to maintain its rural character and control growth, the Town should maintain and preserve its current roads and bridges but not significantly upgrade them. Well-publicized public hearings should be held to review and discuss any proposed road realignments, widening or paving. No such proposal should be implemented unless there is demonstrable, widespread public support for it, particularly from those who live on the road.
- The Town should take into account the impacts of more extreme weather events in designing and maintaining the road beds, ditches, culverts and bridges.
- The Town should discourage development in areas where there is poor road access including, in particular, in the Mountain and Forest and East Lyme zoning districts.
- The Town should consider the effect proposed subdivisions would have on off-site roads, and when appropriate, limit the scope of such subdivisions.
- The Town should not permit development on Class VI roads.
- The Town should not accept any subdivision or private roads as town roads.
- The Town should limit traffic-generating uses on River Road to maintain it as a recreational road for bikers, walkers and joggers and moderate its use as a commuter route.
- The Town should work with Advanced Transit to secure Advance Transit service to Lyme when such service is economically feasible.
- The Planning Board should impose appropriate conditions upon any new development on a designated “scenic road” to insure its compatibility with the scenic qualities of the road.
- The Planning Board, with input from the Conservation Commission and the Heritage Commission, should consider whether any additional roads should be proposed to Town Meeting for “scenic road” designation.
- The Planning Board should review, and revise as appropriate, the Subdivision Regulation standards for new subdivision roads so that such roads are designed and constructed to provide safe, convenient access to the properties that they serve but with due regard to topographic conditions and aesthetics and with as little environmental damage as is reasonably practicable. The regulations should not require widths that are excessive relative to the public road to which the subdivision road connects.
- The Town should use its land use controls to ensure the current 55 mph section of Route 10 south of the Lyme Common remains a safe high speed road providing

- unimpeded traffic flow to and from the employment and commercial centers to the south. This includes protecting Route 10 from significant traffic generating development, and insuring that traffic safety improvements (e.g. turning lanes, etc) are required as a condition of Site Plan Review approval for such developments.
- The Town should investigate the feasibility of creating a bike path from Lyme Common Village to Post Pond.
 - The selectmen should re-establish the Traffic Safety Committee. The Traffic Safety Committee along with the recently formed Roads Committee should examine existing conditions and make proposals for improving safety at intersections, implementing traffic calming measures and increasing pedestrian and bicycle safety, for example:
 - The sight lines of the Route 10 – North Thetford Road intersection should be improved.
 - The sight lines at the Franklin Hill- Dorchester Road intersections should be addressed.
 - Traffic calming measures in Lyme Center Village and on Route 10 between the Common and Grant Brook.
 - The Energy Committee should educate the public on alternatives to the use of single occupancy vehicles and examine the use of the park-and-ride lot to insure that adequate parking is available for carpoolers to reduce the expense of travel, traffic congestion and parking shortages at employment centers.
 - The Lyme Common business community should work with area residents, the school and the Congregational church to improve parking availability in Lyme Common Village.

Figure 3-1 - Lyme Roads in 1925



Source: "A Town That Has Gone Downhill" by James Walter Goldthwait, Geographical Review, Vol.17, 1927

Chapter 4 -Community Facilities and Services

The 2006 *Community Attitude Survey* asked what major capital projects should be undertaken and which should be undertaken in the next ten years. The results are shown in the table below. The survey did not include any questions on the school.

Facility	Strongly Agree or Agree	Disagree or Strongly Disagree	Undertake in the Next 10 Years
New Town Office	53 %	21 %	32 %
Library Addition/Expansion	31 %	33 %	14 %
New Police Station	29 %	35 %	12 %
New Transfer Station	23 %	41 %	11 %
New Fire Station	22 %	36 %	9 %
New Playing Fields	21 %	34 %	8 %

The Town voted at the 2008 Town Meeting to appropriate the money and issue a bond to purchase property and build a new Town Office, to include the Police Station. At the same meeting, funds were appropriated to address the drainage issues affecting the Balch Memorial Field at Post Pond.

Town Offices and Police Station

The new Town offices include meeting space, secure storage for town records, the offices of the Town Clerk and Tax Collector (1 full time and 2 part-time staff) and Selectmen (3 full time staff including the planning and zoning administrator). The offices are open to the public three mornings a week.

The Police Department has its own separate space in the building. The Department is staffed by 2 full time officers and 1 part-time officer. The Department does not have regular public office hours. Dispatch services are provided by the town of Hanover. Due to the limited staff, 24-7 response is available only when there is a threat to life or property.



Fire Department

The Fire Station is a steel frame building built in 1970 with a wood frame addition built in 1994 to provide a training room for fire department personnel. The training room is also available for general town use. In 2007 a 100-foot communications tower was erected on the roof of the building to provide increased coverage for emergency communications. A repeater for Hanover dispatch and a Wi-Fi internet repeater are installed in the building with an antenna on the tower.



The building does not meet current energy efficiency standards.

The Fire Department, including rescue squad, is manned by volunteers. The number and qualifications of personnel who respond to a call is determined by how many volunteers are available at a given time. The Department has one supply pumper, one tanker, a primary attack truck, a rescue squad / equipment truck and two equipment trailers. There is no ladder/tower truck to protect tall buildings, although one may be called in from Hanover NH or Bradford VT through mutual aid.

Library

Lyme has a long history of libraries, dating back to the Social Library of Lime in 1798. The Town voted to publicly support a library housed in the Plain School in 1909. In his 1925 will, Sidney A. Converse bequeathed funds for the library: “I give and bequeath to the Town of Lyme, New Hampshire the sum of fifteen thousand dollars for the purpose of erecting a suitable library building in Lyme village to be known as the Converse Free Library.” The Town voted to accept the bequest in 1930 and six years later built the brick Converse Free Library with two rooms and gracious front entrance. In 1982 after eight years of fund raising, a large addition was built. Until 2009 when the Town offices moved to new facilities on High Street, the Town offices shared the building, occupying most of the basement.



The space vacated by the Town offices has since been converted into a large meeting room for library and Town use, a room for The Friends of Lyme Library to use for book donation sorting and sales, the Lyme Room shared by the Lyme Historians and the Library for important materials about Lyme history and authors, and a room presently rented (for \$1/year) to the Lyme School District for the office of the Superintendent of Schools.

The library collection has grown from the thousand books in its first libraries to over 23,000 items including DVDs, audiobooks, eBooks, and downloadable audiobooks. Circulation is over 28,000 items per year. The library's collection also serves the Lyme School across the street. Students come to the library individually (in the upper grades) and as classroom groups for library instruction and book check-out.

A full time librarian, two part time assistants and 30 volunteers keep the library open 36 hours a week. In 2006, a school librarian was hired (by the elementary school) for 20 hours/week.

The library catalog was computerized in 2003 and the library has had a website -- www.Lymenhlibrary.org--since 2006. The first library computer was purchased in the mid 1990's; there are now nine public computers, wi-fi, a photocopier, two printers, a scanner and fax machine for public use. A diverse schedule of programs is offered through the library and its Friends group.

Highway Garage and Transfer Station



Between 2005 and 2007 a new highway garage, salt shed, and trash compactor were constructed on the existing highway garage and transfer station property. Under an agreement with the neighboring land owners the transfer station was temporarily located on the highway garage property. The Town is committed to finding a permanent solution for trash and recycling.

Cemeteries

The Town maintains five cemeteries: the Beal Cemetery (0.57 acres), the Gilbert Cemetery (144 square feet on private land owned by the Upper Valley Land Trust), the Porter Cemetery (0.36

acres), the Old Cemetery (3.7 acres) and the Highland Cemetery (6.61 acres). In addition there is a sixth cemetery, Tinkhamtown Cemetery, in an unknown location in the forests above Pickle Dish Hollow.



The Highland Cemetery was expanded to its current size by the purchase of an abutting 2.8-acre parcel in 1994. In 2000 a maintenance garage was constructed in the Highland Cemetery to augment the historic maintenance building in the Old Cemetery.

The Highland Cemetery is the only cemetery open for new burials.

Chase Beach Recreation Area



The Chase Beach recreation area is located on approximately 12 acres of land on Post Pond adjacent to the State’s public boat launch facility. The land was acquired by the Town in 1961. In addition to the swimming area, there are two tennis courts, an outdoor basketball court and the Balch Memorial playing field.

Funds were appropriated in 2008 to improve the drainage of Balch Field and make minor improvements to the beach area. The beach area improvement was completed in 2012 and the ball field improvement is scheduled for completion by 2014.

Lyme Center Academy Building

The Lyme Center Academy Building (also known as The Lyme Center School) was built in 1839. Prior to the consolidation of the Town's various school districts in the 1950s, it served as the school for the Lyme Center community, and it continued to serve as the home of the kindergarten until 1994. Between 1997 and 2002 it was extensively restored and renovated. The ground floor houses the Lyme Historians' museum and has a public meeting room. The second floor has a general-purpose room with a small stage. This facility is used for a variety of activities including public hearings, yoga classes, square dances and receptions.



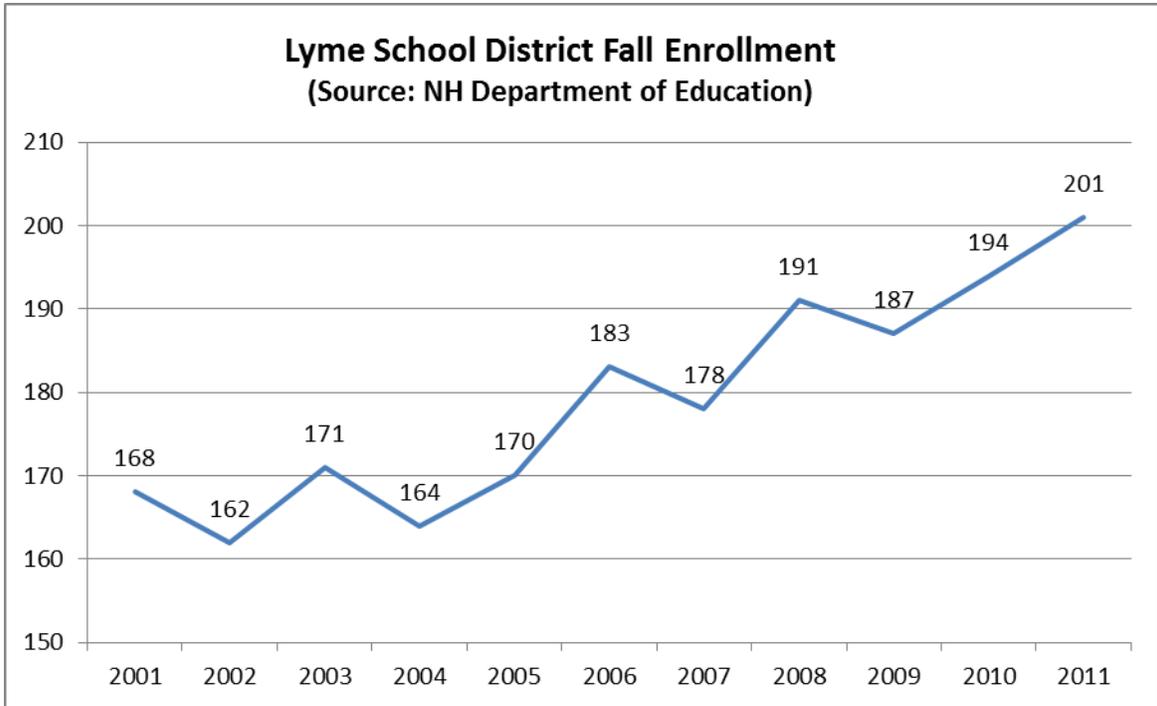
The Lyme Center Academy Building also known as The Lyme Center School

Lyme School

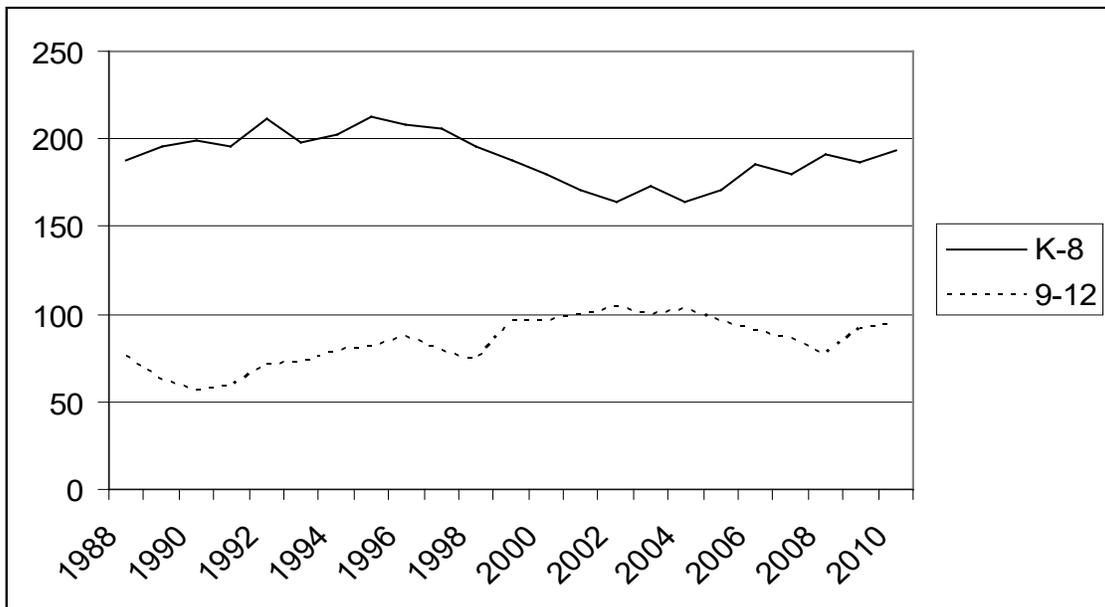
Historically, there were as many as 16 one- and two-room schools in Lyme, each managed by a separate School District. By 1959 the separate districts and schools were consolidated and all classes (except kindergarten) were held at a single facility. The current Lyme School consists of the Plain School built in 1911-12, the Laura Smith Barnes School built in 1957 and a major addition and consolidation completed in 1994. For the start of the 2012/13 school year, temporary buildings have been added to accommodate the growing school enrollment. Should this trend of increasing enrollment continue, a more long term solution may need to be considered.



As shown in the following graph, using data provided by the NH Department of Education, Lyme's school population grew from a low of 162 in 2002 to a total of 201 in 2011. The most recent statistic covering 2012/13 is 213. This represents about a 30% enrollment growth rate (contrasted with a minimal growth in Lyme's overall population) from the low during this period.



Number of Lyme Students



Internet

Until the summer of 2010, residents hoping for internet access had very few options. In the areas outside of Lyme Common most of the residents had to rely on slow dial-up connections. Residents also had the option of using the public high speed Wi-Fi hotspot provided by the

Converse Free Library. In 2010, Segtel and Fairpoint Communications started to provide DSL for those areas of the Town that are located within three miles of the Lyme Common. Unfortunately the access to DSL does not cover the entire Town; there are still outlying areas in the Town that do not have access to affordable high speed internet. Wide area wireless provided by two suppliers within limited areas and satellite connections are the only alternatives.

A fiber optic connection under the “First Roads” initiative is planned for completion in 2012. This will only provide access to commercial and public facilities in the Lyme Common District. The “Last Mile” connections to the rest of the Town are still not planned.

Senior Services

Currently in Lyme services to senior citizens are provided by mostly private and faith based organizations as well as individual citizens. 64% of respondents to the Survey supported encouraging or providing facilities for a Senior Center, with only 26% opposed. Given this level of support, the Town should explore the possibility of a Senior Center, as well as other approaches to aging issues including “Aging in Place” initiatives and senior housing.

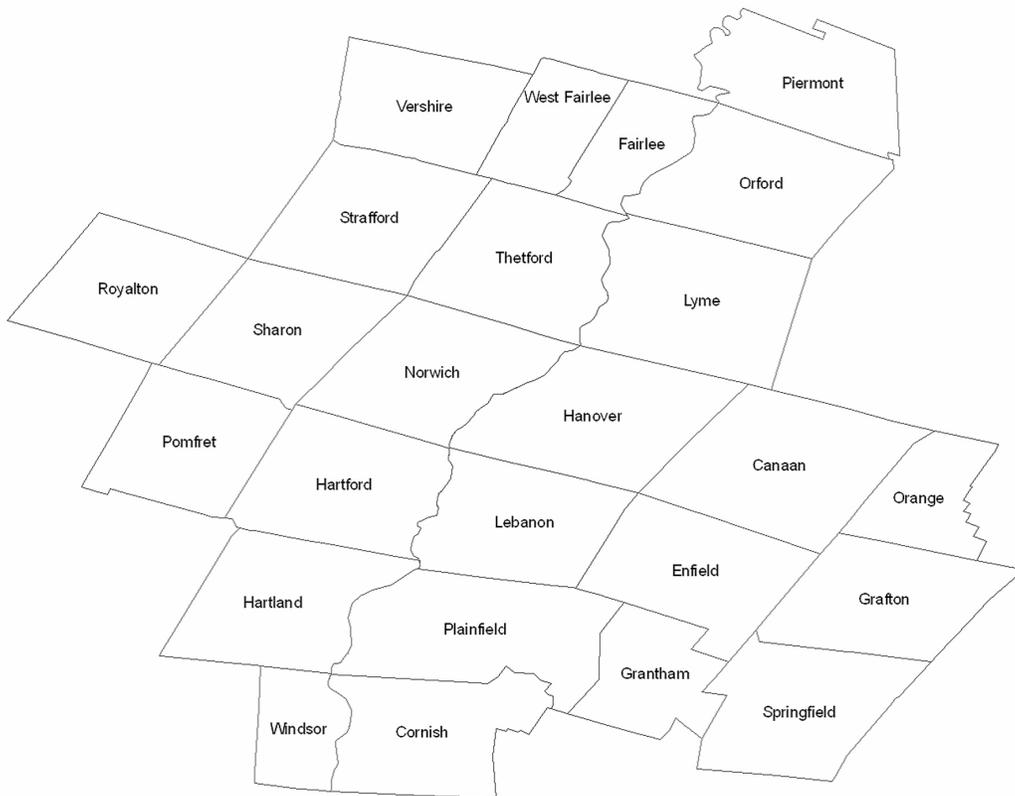
Recommendations

- The Fire Department, with advice from the Buildings Maintenance Committee, should analyze the possibility of upgrading the existing fire station to meet current energy efficiency standards and extend the useful life of the facility. Such an upgrade should only be implemented if cost effective, i.e. if the cost of the upgrade is too high it would make sense to continue to meet the energy costs. Consideration should also be given to replacing the fire station with a new facility.
- The Recreation Committee should conduct a study to determine alternatives to meet current and future recreational playing field's needs, including the use of existing school and Crossroads Academy facilities.
- The Town should continue to pursue initiatives to provide broadband internet service to the entire Town.
- Development projects that would impose an undue burden on the Town's facilities should be prohibited. The developers of all other projects should reimburse the Town for all costs of facilities upgrades necessitated by their projects.
- The Town should not provide water and sewer service. New development should be sized in order that on site water supply and sewer disposal can occur.
- The Town should explore the possibilities of providing facilities for a Senior Center and / or programs in existing structures.
- The Town should encourage the establishment of an Aging in Place initiative as well as addressing other senior housing issues.
- The Town should explore the need for child care services and services to the elderly and the means for meeting such needs.
- The Capital Improvement Plan should be reviewed and updated on a regular basis.

Chapter 5 -Community Profile

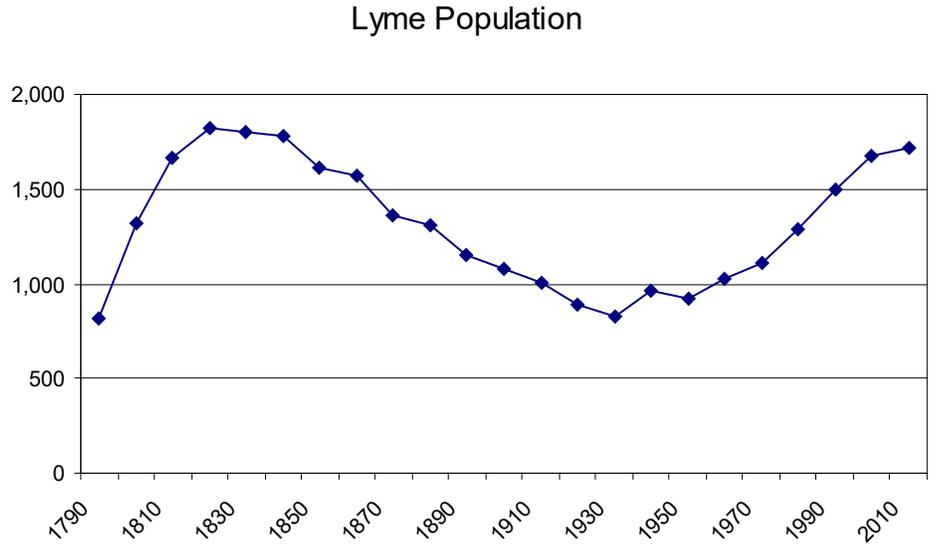
For much of its history, Lyme was a self-contained agricultural community with its two villages, Lyme Plain and Lyme Center, supplying the goods and services that could not be produced on the farms. With the coming of the automobile and improvements in transportation, Lyme became integrated into a regional area centered on Hanover, Lebanon and White River Junction. This regionalization continued as more and more communities became inter-dependent demographically, socially and economically.

The trend towards regionalization is national and was officially recognized by the Federal Office of Management and Budget by creating a new category called “micropolitan area” for those areas that have a central city with a population of less than 50,000. Within New England, metropolitan and micropolitan areas are called “New England City and Town Areas” (NECTA) because they are based on cities and towns rather than counties. Lyme is one of thirteen New Hampshire and twelve Vermont cities and towns making up the Lebanon NH-VT Micropolitan NECTA (The “Lebanon Area”).



Population

The earliest record of Lyme’s population was 241 in the 1773 state census. It peaked in the 1820 national census at 1,824, then declined for over 100 years to a 1930 low of 830, increasing to an estimated 1,716 in 2010.



Source: United States Census

The table below compares Lyme’s population and 10-year growth rate for the last 40 years to those of the Lebanon Area and Grafton County. As shown below, over the past 40 years, Lyme’s population has grown at approximately the same rate as the Lebanon Area and Grafton County.

Year	Lyme		Lebanon Area		Grafton County	
	Population	10 Year Growth	Population	10 Year Growth	Population	10 Year Growth
1960	1,026		44,808		48,857	
1970	1,112	8.4 %	48,759	8.8 %	54,914	12.4 %
1980	1,289	15.9 %	59,102	21.2 %	65,806	19.8 %
1990	1,533	18.9 %	67,546	14.3 %	74,998	14.0 %
2000	1,679	9.5 %	75,170	11.3 %	81,743	9.0 %
2010	1716	2.2%	78,52	4.0%	89,118	9.0
50 Year Change:		67.3 %		74.4 %		82.4 %

Source: United States Census

In the 2006 *Community Attitude Survey*, Lyme’s small population was cited by 33% of respondents as one of the towns three greatest assets.

Respondents to the survey rated the 9.5% population growth over the more recent ten year census period from 1990 to 2000 as about right (48%) too rapid (19%) and too slow (17%). 10% had no opinion on the question and 5% did not respond.

The State’s methodology for estimating future population rounds it to the nearest 10, which gives a deceptive picture for communities with a small population. In 2008 the US Census Bureau estimated Lyme’s 2007 population as 1,701, and in 2009 the State estimated Lyme’s population as 1,696. Estimates of Lyme’s future population are shown below:

State Estimates of Lyme Population	
Year	Population
2010	1,770
2015	1,860
2020	1,920
2025	1,980
2030	2,050
Source: NH OEP January 2007 estimates.	

The 2000 census shows the following demographics for Lyme’s population compared to that of the Lebanon area. (See tables 5-1 through 5-4 at the end of this section.)

- older – median age of 42.6 v. 36.9 for the Lebanon area,
- slightly less diverse – 98.6% white v. 95.7% for the Lebanon area,
- more stable – 61.8 % in the same house in 1995 v. 55.6% for the Lebanon area,
- greater educational attainment – 28.4% college graduates v. 21.1% for the Lebanon area and 27.5% with a graduate or professional degree v. 18% for the Lebanon area, and
- higher income – 27.0% of households with income below \$35,000 in 1999 v. 35.3% in the Lebanon area and 25.7% with income of \$100,000 or more v. 12.9% in the Lebanon area.

Housing

In the 1974 *Community Attitude Survey*, 51% expressed their opinion that there was an adequate supply of housing in Lyme and 69% felt the Town should not make provisions for multi-family housing. In the 1981 *Survey* the results were 59% saying the supply was adequate and 50% opposed to providing for additional multi-family housing.

In the 2006 *survey*, providing housing for people of all incomes was ranked fourth overall of the problems facing Lyme. Encouraging additional housing for moderate income people was favored by 59.3% and opposed by 11.8%; for elderly people favored by 53.5% and opposed by 13.5%, and for low-income people 48.5% favored and 20.3% opposed. By comparison,

encouraging additional housing for high-income people was favored by 12.3% and opposed by 49.1% of the respondents.

Lyme’s housing stock is predominantly single-family detached homes. This category represents 87.2% of the housing units in Lyme v. 66.8% in the Lebanon area. In addition the homes are older with 40.7% built before 1940 v. 27.8% in the Lebanon area and more expensive, with the median value of a house in Lyme being \$168,300 in 1999 v. \$139,171 in the Lebanon area.

The cost and affordability of housing in Lyme compared to the Lebanon area and Grafton County is summarized below.

Costs and Affordability of Housing						
	Lyme		Lebanon Area		Grafton County	
	Number	Amount	Number	Amount	Number	Amount
Owner occupied housing:						
median monthly cost (with a mortgage)	214	\$1,299	9,188	\$1,168	9,590	\$992
median monthly cost (without a mortgage)	108	\$433	4,125	\$739	4,925	\$441
Median monthly cost >30% of gross income	78	24.3%	2,757	15.0%	2,852	14.1%
Renter occupied housing:						
median monthly rent	120	\$688	8,377	\$627	9,552	\$560
Median monthly rent >30% of gross income	41	34.1%	2,870	34.3%	3,086	32.2%
Source: 2000 United States Census						

The shortage of affordable housing is a statewide issue and not just limited to Lyme, the Lebanon NECTA and Grafton County. The State has responded by enacting RSA 674:58, requiring municipalities to adopt land use ordinances to provide opportunities for the development of workforce housing. The law defines “affordable” as housing with combined rental and utility costs or combined mortgage loan debt service, property tax, and insurance that do not exceed 30 percent of a household’s gross annual income. The 2000 census shows that 34.1% of Lyme, 34.3% of Lebanon NECTA and 32.1% of Grafton County renters are paying somewhat more than 30 % of their income for housing. (Data is not available for homeowners.)

Within the Lebanon Area, the Upper Valley Housing Coalition has been working with communities and employers to increase the stock of affordable housing since 2001.

Recommendations

- The Town should work with the Upper Valley Housing Coalition to explore reasonable and realistic opportunities for affordable and work force housing where economic and environmental factors make such efforts viable.
- The Town should explore ways to meet the needs of its older residents including assistance with “aging in place” programs, the possibility of establishing a senior center, providing for elderly housing in the two villages and provision for basic support services including a visiting nurse program, meals on wheels and transportation.

Chapter 6 -Natural Resources and Conservation

Basic to the formulation of a plan to guide Lyme's future growth and development is an understanding of the Town's natural resources. Lyme's natural resources include its hills, soils, surface and ground water, clean air, forests, wildlife, and scenic views. These natural resources are experienced together as the agreeable environment and pleasing landscape that Lyme residents enjoy. For wildlife, these natural resources combine as essential habitat. Most residents take for granted that Lyme's resources also provide essential habitat for people: settings that offer good locations for foundations for homes and safe driveways, clean water for domestic use, soils suitable for accepting and treating septic effluent and a landscape that is inspirational and still provides economic return. It is no surprise that Lyme's response has been to incorporate an appreciation of natural resources into our way of life, an appreciation that is evident in our recreational pursuits, land-based businesses and conservation ethic.

Natural resources present both opportunities for and constraints to development, with some areas naturally better suited for a particular use than others. If Lyme is to protect its natural resources and provide a high quality of life for its citizens, the capacity of Lyme's natural resources to accommodate development must be respected. The land use recommendations in this *Plan* are based on the premise that future development of the Town should be guided by the ability of the land to support it while preserving Lyme's natural heritage. There is also the acknowledgment that wildlife has a place in the community. The conservation of healthy ecosystems whether through current use, permanent protection or by management to benefit wildlife, is our way of accommodating wildlife.

This chapter describes the importance of the Town's natural resources to Lyme's residents, and identifies and describes these resources. Characteristics of the land which favor and limit development are distinguished. Lyme's critical natural resources, those which must be protected from development, or which limit development, are discussed. A regulatory approach to land use best guides decisions in a way that accommodates future development while minimizing the negative impact on critical natural resources. Conservation of land that protects important resources is a complementary way of assuring that our natural resource base will be intact for future generations.

In August 2007, a natural resources inventory was prepared for the Town to document natural resources, and to provide management recommendations and planning tools for the Town. Rather than copy the detailed inventory information, the inventory is adopted by reference in its entirety as part of this *Master Plan*. A listing of the resources identified in the inventory and a few facts about each are listed in the Table set forth below. The recommendations from the inventory are included with other recommendations at the end of this chapter.

Natural Resource	Facts from <i>Natural Resources Inventory for Lyme</i>
Rivers and large waterbodies	1033.8 acres of inland waters; including 8.3 miles of frontage on the Connecticut River.
Sub-Watersheds	Eight sub-watersheds draining into Canaan Street Lake, Clay Brook, Connecticut River, Goose Pond, Grant Brook, Hewes Brook, Jacobs Brook, South Branch Baker River.
Riparian habitat and floodplains	Occurs along the 82 miles of frontage on river and streams and in conjunction with wetlands.
Wetlands	Approximately 1793 acres, or 5.1% of the land area in Town; essential habitat for the majority of plant and animal species in New Hampshire.
Vernal Pools	Isolated wetlands that provide essential breeding habitat for wood frogs, spring peepers, spotted salamanders, marbled salamanders and fairy shrimp. There are 12 documented vernal pools in Lyme and many additional vernal pools not yet documented.
Permanent openings	2,560 acres, or 7.3% of the land area in Town, are farm field, pasture or brushy open land. These lands are important for habitat, and increase plant and wildlife diversity.
Forested lands	Nearly 90% of the Town including 16.4% of the Town in dense softwood stands that provide winter cover and foraging habitat for wildlife.
Bedrock geology	Parent material and glacial action have left Lyme with a number of sheer cliffs on Holts Ledge, Winslow Ledge, Lamberts Ridge, Smarts Mountain, Bear Hill and Post Hill.
Agricultural Soils	1,423 acres, 4% of Lyme, are prime farmland; 1,698 acres, 4.8% of Lyme, are agricultural soils of Statewide importance; 4,939 acres, 14% of Lyme, are agricultural soils of local importance.
Stratified drift aquifer	Most of Lyme's 3,052 acres of stratified drift aquifer lie along the Connecticut River, Clay Brook, Grant Brook and Hewes Brook. These are important sources of groundwater.
Slope	Slopes above 15% comprise 23,144 acres of land or 65.7% of the total land area in Lyme. Development is restricted on such slopes.
Rare species and exemplary natural communities	Loons and Peregrine falcons are two endangered bird species found in Lyme.
Scenic resources	Smarts Mountain, hills and ridges, open land, numerous ponds and streams and miles of Connecticut River frontage contribute to the many scenic views in Lyme.

For more information about Lyme's natural resources, please see *Natural Resources Inventory for Lyme*, prepared by Watershed to Wildlife, Inc. August, 2007.

How Lyme Residents Feel about Natural Resources

The results of the 2006 *Community Attitude Survey* show the importance of Lyme's natural and cultural resources. When asked to identify Lyme's greatest assets, scenic beauty was of first importance. Maintenance of the Town's rural character was identified as the most important issue facing the Town and this depends, in significant part, on the natural landscape. Conservation areas were the second most highly rated amenity in Town. The following table shows the percentage responses of those who responded to the statement "Lyme should take steps to protect the following resources:"

Item	Strongly Agree or Agree	Disagree or Strongly Disagree
Natural Areas	98 %	2 %
Historic Sites and Structures	98 %	2 %
Farmland	94 %	5 %
Shores of streams and ponds	95 %	4 %
Wildlife habitat	95 %	4 %
Scenic views and vistas	94 %	6 %
Forested hillsides and ridgelines	90 %	9 %
Access to public waters	95 %	5 %
Trails	96 %	3 %

Thus there is a very high level of support for increasing the protection of natural resources. There is also strong support for funding the protection of natural resources. A majority of respondents to the 2006 *Survey* indicated that they would favor an increase of \$50 in their property taxes to support land protection. A majority also supported an annual voluntary contribution of \$10 to \$50 to the Town's Conservation Fund.

Natural Resources and Development

Setting and Topography

Lyme is located in the Connecticut River Valley, just north of the confluence of the White and Connecticut Rivers. Its boundaries cut a swath of land which rises from fertile river bottom to the summits of Smarts Mountain and Holts and Winslow Ledges. This transition is far from gradual. Lyme's hills and stream valleys make for a markedly varied terrain, a physiographic mix of steep slopes, wetlands, small ponds and upland terraces. Smarts Mountain and the Connecticut River are the defining bookend features of Lyme's landscape.

Topography is a way of describing the landform of an area. It is usually expressed as elevation or height above sea level. Lyme's major topographic features are its hills: Smarts Mountain.

(elevation 3238'), Winslow Ledge (2282'), Holts Ledge (2110'), Moody Mountain. (1969'), Bear Hill (1948'), Flint Hill (1440'), Acorn Hill (1377'), Plot Hill (1300'), Lyme Hill (1047') and Post Hill (1080'). Most of Lyme's human activity occurs at lower elevations: along the Connecticut River (385'-450'), in the Post Pond area (428'), Lyme Common (563'), Lyme Center (785') and along Route 10 (730' in the south to 430' in the north). These lower elevation locations are more easily accessed and have deeper soils, an attractive feature for Lyme's earliest residents who relied on farming for their livelihood.

Slope

Slope refers to the steepness of land and measures the change in elevation across an area. It is expressed as a percent, so that, for example, a 10% slope means there is a 10 foot change in elevation for every 100 feet in horizontal distance. Slope is a characteristic of land that influences the feasibility of land use and the economics of site development. Steep slopes (greater than 15%) present severe limitations to building development and, if developed, are likely to cause environmental problems such as erosion or slope instability. Site preparation, road maintenance, snow removal, provision of safety services and utility construction and service are more difficult and costly in steep areas.

Areas with slopes greater than 15% are difficult to develop in an environmentally sound and cost-efficient way. Land with slopes greater than 25% should be left as open space due to erosion potential and difficulty for development. Since steepness may preclude the use of large farm equipment, suitable land uses in steep areas are forestry, recreation, wildlife habitat, pasture, and farming using small equipment and soil conservation practices to prevent erosion.

Topographic conditions in Lyme are expressed in five slope percentage categories, 0-3%, 3-8%, 8-15%, 15-25% and greater than 25%. The *Natural Resources Inventory* includes a map which shows slopes in the two steepest categories. The 1985 *Master Plan* includes a detailed description of where different slope categories are commonly found in Town.

Moderately steep hillside land with slopes 8-15% offers the potential for satisfactory development sites. Land in the upper range of slope percentage in this category can be severely eroded as a result of improper site development and through extensive, or poorly-timed removal of vegetation. Erosion problems can generally be overcome by careful planning and good engineering. Prompt re-vegetation, minimizing the cut into the slope for foundation and driveway construction and moving earth only during the dry portions of the year are practices which can prevent erosion.

Road construction in areas with slopes of 8-15% may limit the development potential of these areas. Roads must be sited and designed to minimize erosion. Roads or driveways with grades greater than 8% may be difficult to negotiate in winter months; grades greater than 12% require intensive sanding and plowing during severe winter weather and are likely to hinder efficient access including access by emergency vehicles.

The largest areas of steep hillside land with slopes of 15-25% are located in the eastern portion of Town, along the flanks of the Town's highest hills. Roughly 25% of the land in Lyme is included in this slope classification. Although sites characterized by slopes greater than 15% are

subject to erosion and soil instability, it can be economically and environmentally practical to develop these sites but only if appropriate erosion control techniques are applied during and after site development to minimize the risks of these problems. Extreme care must be used during construction so that as little existing vegetation as possible is disturbed during site development.

Road construction through areas of 15-25% in slope is difficult and expensive. Traversed (switch-back) road construction is required.

Land in Lyme with greater than 25% slope includes the areas below the exposed summits of the Town's highest hills. Approximately 13,830 acres of land in Lyme (40% of the total area) has a slope greater than 25%.

Very steep hillside land should not be considered for either building or road construction. The potential in these areas for severe soil erosion and damage to watershed quality is very great. Construction in these areas should not be permitted.

The Town of Lyme can be divided into two general areas on the basis of topographic conditions:

The first area consists of the western part of Town eastward to the bases of Moody Mountain, Lambert Ridge, Winslow and Holts Ledge and Bear Hill. The slopes of this area are predominantly 3-15%; 23% of land in this area is 15-25% in slope and 7% is over 25% in slope. Ninety-five percent of all building construction in Lyme is in this area, which includes all of Lyme Common Village and Lyme Center Village.

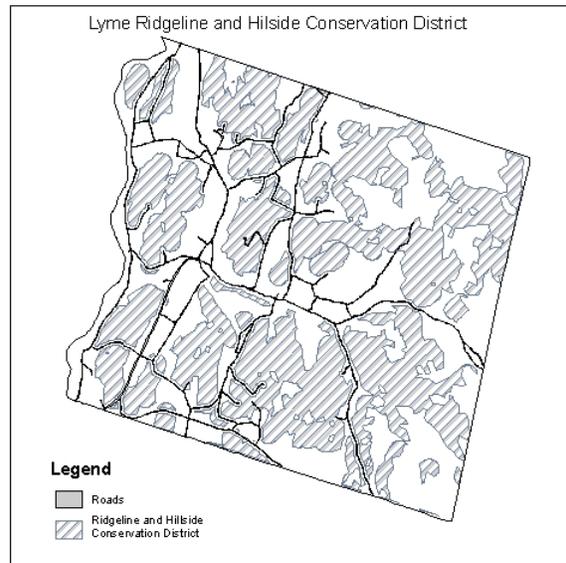
The second area is the eastern part of Town. This area is characterized by steep to very steep slopes. Sites for potential development are widely dispersed and exist only in small parcels separated by large expanses of steep slopes.

In response to the general slope characteristics, a distinction has been made between the eastern and western parts of Town. The western areas of Town with the more gentle grades, better access and deeper soils have traditionally been zoned to accommodate more housing density, while the eastern areas of Town have been zoned for land based activities such as outdoor recreation and forestry.

On steep slopes, soils are usually shallower, the volume and velocity of surface water runoff is higher and the erosion potential is greater than on flatter areas. Consequences of erosion are loss of soil resulting in sedimentation of surface waters and loss of the productive capacity of the land. By directing development away from steep slopes the following objectives will be accomplished: (1) prevent soil erosion; (2) protect surface waters from sedimentation, turbidity, runoff of storm water and effluent from sewage disposal systems; (3) preserve tree cover and other vegetative cover; (4) protect wildlife habitat; (5) preserve scenic views; (6) protect natural areas; and (7) maintain ecological balance.

For this reason, Lyme should continue to impose limitations on development in areas with slopes of 20% or more. Appropriate uses in steep slope areas include: forestry and agriculture so long as best practices are followed, wildlife habitat, parks, outdoor recreational uses, conservation, and trails.

Closely allied with the protection afforded by the Town's Zoning Ordinance through the Steep Slopes Conservation District is the protection of ridgelines and hillsides. The Town's scenic and rural character is protected by requiring that development be carried out so as to be visually unobtrusive to the greatest extent reasonably practicable while permitting the landowner to exercise his property rights. Acknowledging the thin soils present in ridgeline and hillside settings and that access is usually via steep slopes, the present Ridgeline and Hillside Conservation District was created to comprise ridgeline and hillside areas depicted on the map included as Appendix F of the current Zoning Ordinance. The map designates ridgelines and hillsides within 1000' of the ridgelines which could be visible (without trees) from publicly maintained roads and public waterways. It also includes adjacent slopes of 20% or greater, but excluding land located within 300 feet from publicly maintained roads. The scenic value of Lyme's ridgelines and hillsides contribute significantly to the maintenance and enjoyment of the Town's rural character. Protection of the thin soils and preservation of these scenic values and of Lyme's rural character is essential to the current and future well-being of the people of the Town.



The uses permitted in the Ridgeline and Hillside Conservation District are all of the uses allowed or permitted by special exception in the underlying zoning district as long as, to the maximum extent reasonably practicable, those uses will not materially interfere with or degrade those visual features of the site or adjacent sites which contribute to the scenic character of the area.

Soils

Soils are the result of topography, climate, biotic forces and time working on the parent rock. Soil is a fundamental natural resource. The soil properties of fertility, depth, permeability, wetness, slope and susceptibility to erosion define the land's capacity to support vegetation, natural ecosystems and development.

In Lyme's 1985 *Master Plan*, nine soil groups were identified by grouping soil types having similar constraints upon site development. Each of the nine soil groups is described in the 1985 *Plan* in terms of origin, location, characteristics and suitability for development as they may apply to building density, septic system operation, foundation construction and road construction. This excellent discussion is incorporated here in its entirety by reference but the three soil types that merit special protection are discussed. These are (1) alluvial, flood-prone soils, (2) shallow-to- bedrock soils and (3) agricultural soils.

Alluvial, flood-prone soils

Alluvial soil, for the most part is formed within the flood plains of present day rivers and streams. In Lyme, large deposits of alluvial soils are found along the banks of the Connecticut River and Grant, Clay, Hewes, Call, Tinkhamtown, Pressy, Marshall, Perkins, Trout and Whipple brooks. Soil types classified as alluvial-flooding include Hadley, Ondawa and Podunk soils.

Areas of alluvial-flooding soil are, in most cases, not suitable for any development due to the danger of flooding and a seasonally high water table. Because of the high water table, it is difficult to properly site septic systems. Full basement foundation construction is not recommended because of the chance of seasonal flooding or high water tables. Road construction through and near areas subject to flooding is possible but not recommended. Culverts and bridges will raise upstream water levels with the effect that channel and backwater storage is lost. If undertaken, construction of a stable and porous sub-base is necessary to accommodate high water conditions without upsetting the ecological balance of adjacent lands.

Although not entirely coincident with alluvial-flooding soils, flood prone areas are federally designated and municipalities are required to restrict development in order to be eligible for federal flood insurance and disaster relief. Lyme currently regulates a Flood Prone Area Conservation District defined as comprising all flood prone areas. Flood prone areas are: (1) areas of land lower in elevation than the land-water boundary at the high water mark along a water course flowing at its 1% frequency (100 year flood); (2) areas of land lower in elevation than the land-water boundary of other surface water at the high water mark of such surface water at its 1% frequency (100 year flood); and (3) those areas characterized by soils classified by the National Cooperative Soil Survey as "Soil Subject to Flooding." Such protection should continue, with the primary objective of the Flood Prone Area Conservation District limiting the nature and intensity of development of flood prone areas to those uses which can be appropriately and safely located in flood prone areas and serve the following additional objectives: (1) secure safety from floods; (2) reduce the financial burdens imposed upon the Town through rescue and relief efforts occasioned by the occupancy or use of areas subject to periodic flooding; (3) prevent loss of life, property damage and the other losses and risks associated with flood conditions; (4) preserve the location, character, and extent of natural drainage courses; (5) protect wildlife habitat; (6) preserve scenic views; (7) protect natural areas; and (8) maintain ecological balance.

Lyme should continue to limit the uses permitted as of right in the Flood Prone Area Conservation District to: forestry, agriculture, wildlife refuge, park, outdoor recreation, conservation, trails, wells, waterlines, fire protection structures and, by special exception, to water impoundments, non-business, non-residential water dependent uses, access ways, cottage industry and home occupation in pre-existing residences, multi-dwelling, office or studio conversion in pre-existing buildings, and telecommunications structures. Additionally, no underground fuel storage tanks or uses which utilize, store, process or dispose of toxic substances which may pose a threat to water quality should be permitted.

Shallow-to-bedrock soils

Shallow-to-bedrock soils, where bedrock is within two feet of the ground surface, are found over approximately 21% of the Town. Many are associated with upland and steep slope areas. Development where there is a thin soil layer presents both economic and environmental problems. Since the water table is usually high in these soils, septic system and building development is difficult and often not practical. Ground water contamination and erosion are major environmental risks associated with development on shallow-to-bedrock soils. Forestry, pasture and recreation are appropriate uses for land with shallow-to-bedrock soils.

State septic system regulations govern septic system development in shallow to bedrock soils. Lyme's current Steep Slope Conservation District regulates development in shallow to bedrock soils. The District and the uses appropriate to it are described in the previous section of this chapter addressing steep slopes.

Agricultural soils

Agriculture makes significant contributions to the food supply, the economy, the environment, and the aesthetic character of the State of New Hampshire and of the Town. The tradition of using the land for agricultural production is an essential factor in providing for the favorable quality of life in the State and in the Town. The Town's agricultural soils are a scarce and vital natural resource.

Roughly 8,000 acres of Lyme's soils are of national, state or local agricultural importance. As shown on the map of farmland in the *Natural Resources Inventory* most agricultural soils are found in areas that have been developed to some extent. Since Lyme has not been generously endowed with agricultural soils and since many areas have been built on, the remaining undeveloped areas of agricultural soils should be protected from development that would destroy their usefulness for growing crops in the future.

To protect its agricultural soils the Town has established an Agricultural Soils Conservation District in its current zoning ordinance. The primary objective of the Agricultural Soils Conservation District is to preserve and protect the Town's agricultural soils by permitting only those uses which can be accommodated without destroying the usefulness of such soils for agricultural production. The Agricultural Soils Conservation District is defined as comprising those areas in the Rural, East Lyme, and Mountain and Forest Conservation zoning districts determined to be agricultural soils of national, statewide, or local importance, but excluding limited building zones and contiguous units of agricultural soils under one acre in size. Agricultural soils commonly found in Grafton County are listed in Appendix B of the Zoning Ordinance. The Town has chosen to allow limited development of lots with exclusively agricultural soil. The Town should continue to restrict development on agricultural soils in order to protect the resource.

Water resources

Water resources include Lyme's surface waters (the Connecticut River, streams, and ponds), aquifers and wetlands. The land adjacent to a water body, the riparian area, is as important as the water itself. The riparian area is critical to preserving water quality. It also provides valuable wildlife habitat. By keeping riparian areas vegetated, surface water runoff is slowed and the potential for soil erosion reduced. Keeping impervious surfaces at a distance from surface waters

reduces the negative effects of storm water runoff by decreasing storm water flow rates and increasing filtration, thus reducing erosion.

Lyme's current zoning ordinance regulates land use in a Shoreland Conservation District and a Wetlands Conservation District. The Shoreland Conservation District is defined as comprising: (1) all lands within 200 feet of the shore of the Connecticut River (including backwaters impounded by Wilder Dam), Reservoir Pond, Post Pond, Trout Pond, and all other ponds greater than 5 acres in size; and (2) all lands within 100 feet of the shore of all other surface waters.

Wetlands include swamps, marshes, bogs, and similar areas. They are delineated on the basis of hydrophilic vegetation, hydric soils, and wetlands hydrology. In Lyme, the Wetlands Conservation District is defined as any area that is inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal conditions does support, a predominance of vegetation typically adapted for life in saturated soil conditions. The District is further defined to include a 100 foot protective buffer zone around such areas.

The Town's surface waters are vital natural resources providing significant scenic, recreational and wildlife values with the potential for public water supply. The primary objective of the Shoreland and Wetland conservation districts is to preserve and protect the Town's surface waters by permitting only those uses which can be harmoniously, appropriately, and safely located adjacent to surface waters and thereby serve the following additional objectives: (1) protect surface waters from sedimentation, turbidity, runoff of storm water, and effluent from sewage disposal systems; (2) preserve tree cover and other vegetative cover; (3) protect wildlife habitat; (4) preserve scenic views; (5) protect natural areas; and (6) maintain ecological balance.

Lyme should continue to limit the uses permitted in these conservation districts to: forestry, agriculture, wildlife refuge, park, outdoor recreation, conservation, trails, wells, waterlines, fire protection structures, docks, water impoundments, non-business, nonresidential water dependent uses, and road crossings and utility rights of way. Additionally, underground fuel storage tanks or uses that utilize, store, process or dispose of toxic substances that may pose a threat to water quality are prohibited. This approach to limiting uses in the wetland and shoreland districts should be continued to serve the objectives of the districts as described above.

The following is a brief summary of the excellent discussion on aquifers in the Natural Resources Inventory. The most important underground water resources for commercial or public water supplies are from stratified-drift aquifers. These large sand and gravel deposits are saturated with water and are influenced by surface water. Because of their porous nature they are susceptible to contamination. The extent of Lyme's stratified drift aquifers is below the state-wide average. One large aquifer lies under and just north of Lyme Common Village. Because of the relative scarcity of aquifers and their value as current and future water supplies, it is imperative that these areas be protected from contamination from surface activities and development.

Rare plants and animals and exemplary natural communities

Lyme's varied topography, many wetlands and water bodies, soils and extensive system of open space support a number of rare plants and animals and exemplary natural communities. These

are documented by the New Hampshire Natural Heritage Bureau in conjunction with the New Hampshire Chapter of The Nature Conservancy.

As additional rare species are found and reported, the listing is updated.



walking fern
(endangered in NH)



large yellow lady's slipper
(threatened in NH)

New Hampshire Endangered Plants Found in Lyme (sites reported in the last 20 years)		
Common Name	Lyme Sites	State Sites
Ebony Sedge	1	1
Smooth Woodsia	1	4
Walking Fern	1	6
Showy Lady's Slipper	1	7
Vasey's Pondweed	1	10
Barren Strawberry	1	12
Beaked Sanicle	1	15
Creeping Juniper	2	2
Snowy Aster	2	2
Water Stargrass	2	8
Wapato	2	12

New Hampshire Threatened Plants Found in Lyme (sites reported in the last 20 years)		
Common Name	Lyme Sites	State Sites
Slender Cliffbrake	1	6
Hackberry	1	15
Stickseed	1	18
Large Yellow Lady's Slipper	1	19
Squirrel Corn	1	38
Scirpus-like Sedge	2	11
Goldie's Fern	2	41
Ginseng	4	66

Exemplary Natural Communities Found In Lyme		
Name	Lyme Sites	State Sites
Circumneutral rocky ridge	1	2
Montane circumneutral cliff	2	15
Red oak - ironwood - Pennsylvania sedge woodland	1	13
Red oak - pine rocky	2	48
Circumneutral seepage swamp	1	3



Peregrine falcon chicks
Lyme has 1 of 11 nesting sites in NH
(Monitored national, endangered in NH)



Common loon
Lyme has 1 of 225 nesting sites in NH
(Threatened in NH)

Conservation

Some degree of protection is afforded through Lyme's Zoning Ordinance and various State and federal regulations but, for the most part, specific resources and places are not fully protected from the impacts of development. Development proposals are reviewed before being undertaken, and such reviews are useful because potential environmental impacts may be avoided or mitigated, but the most effective protection of such natural resources as wildlife habitat is through land conservation rather than regulation via such land use controls as zoning.

Current use is a statewide program designed to encourage property owners to keep their land in an open, undeveloped condition through relief from high real estate taxes. Agricultural land, managed and unmanaged forest land, wetlands and wild land all qualify for current use taxation. Taxation of land at its undeveloped value rather than at its fair market value, enables landowners to maintain their land in agriculture, forestry or open space without being forced by high taxation to sell or develop the land. The landowner benefits from low property tax liability. The Town benefits from not having to provide extensive services to the property or to educate the children who might live in homes developed on the property. In addition, the natural functions, wildlife habitat and scenic views provided by the property have a positive impact on the quality of life in Lyme.

When a landowner chooses to develop land that is enrolled in the current use program, a land use change tax equal to 10% of the fair market value of the land in its developed use is assessed. Lyme chooses to deposit this land use change tax into the Town's Conservation Fund. The Fund is managed by the Conservation Commission and is used for the acquisition of conservation land or conservation easements and for the management of the Town's conservation lands. It makes sense that, as land is converted from open space use, the land use change tax is made available to the Conservation Commission for conservation work.

In Lyme, 318 property owners have placed 405 parcels of land in current use. As of April 2010, a total of 26,304 acres were in current use. This is 75 % of the land area of Lyme. The 2010 *Lyme Land Use Map* in Chapter 2 shows land in current use.

Current Use Category	Acres
Farm land	2,972
Forest land	13,122
Forest land with documented stewardship	9,309
Unproductive land	323
Wetland	578

Conservation easements are responsive to the wishes and needs of the landowner and so are quite flexible in the degree of land protection they afford. Protection can range from a simple restriction on subdivision to the prohibition of any subdivision and any form of development. Easements may be held by non-government conservation organizations, the Federal or State government or the Town. Many of these easements are on land under current use or on land in conservation areas. As of January 2011, there were 204 conservation or zoning easements on 10,259 acres (approximately 30% of the land area of Lyme). See figure 2-2 on page 2-24 for a map showing the land subject to conservation easements and land subject to zoning easements.



Primary Easement Holder	Number of Easements	Total Acres
Non-Government organizations:		
Connecticut River Watershed Council	22	588
Society for the Protection of NH Forests	19	236
Upper Valley Land Trust	65	3,851
Federal Government:		
For the Appalachian Trail	6	192
Under the Forest Legacy Program	5	2,884
State of New Hampshire	4	318

Town of Lyme	83	2,190
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Four non-governmental conservation organizations own approximately 5,230 acres in Lyme. Please refer to the description of these organizations in Chapter 2 starting on page 2-14.

Non-Governmental Organization	Acres
Bear Hill Conservancy Trust	4,710
Society for the Protection of NH Forests	272
Upper Valley Land Trust	241
Montshire Museum	7

Public conservation areas owned by the Federal and State governments and by the Town are listed below.

Appalachian Trail: The National Park Service owns 2,429 acres in Lyme as a part of the Appalachian National Scenic Trail corridor from Springer Mountain in Georgia to Mount Katahdin in Maine. The Department of Agriculture (White Mountain National Forest) owns an additional 556 acres near the AT.

Wilder Wildlife Management Area: The New Hampshire Department of Fish and Game owns 44 acres between River Road and the Connecticut River.

Big Rock Nature Preserve: The Town owns 10 acres on the north side of Grant Brook between Market Street and Route 10.

Chaffee Wildlife Sanctuary: The Town owns 21 acres north of Trout Brook and an additional 1.3 acres south of the Chase Beach Recreation Area. Both lots front on Post Pond.

Lyme Town Forest: The Town owns 422 acres west of the Orfordville Road near the Orford Town Line.

Trout Pond Forest: The Town owns 385 acres at the end of Trout Pond Lane, which includes Trout Pond.

Hewes Brook Car-top Boat Launch: The Town owns one acre along the south side of Hewes Brook where it joins the Connecticut River.

The Town also owns 13.9 undeveloped acres on the west side of Post Pond and 16 acres at the end of Canaan Ledge Lane.

Recommendations

- The Town should continue to use land use regulations and conservation to protect its natural resources.
- The Town's wetlands provide very important water quality protection and wildlife habitat. The Conservation Commission should inventory and evaluate the wetlands for functionality and vulnerability and those wetlands that meet the State's criteria for prime wetland designation should be so designated. Although the Town's wetlands are protected by Town, State and Federal regulations, a concerted effort should be made to permanently protect the most important wetlands through outright acquisition or conservation easement.
- The Town should inventory and protect its vernal pools.
- To protect water quality and wildlife habitat and travel corridors, vegetative buffers should be established and maintained, through regulation, conservation easements and purchases, along the Connecticut River and the Town's ponds, streams and wetlands.
- The Town should also investigate the feasibility of establishing and maintaining sediment basins along Town roads to reduce sediment runoff into the Connecticut River and the Town's ponds, streams and wetlands.
- The Town should continue to work with the Upper Valley Subcommittee of the Connecticut River Joint Commissions to manage and protect the Connecticut River.
- The Town should consider implementing selected Best Management Practices within aquifer recharge areas to protect the aquifers. Such practices include appropriate limitations on the installation of new septic systems and monitoring existing septic systems to guard against system failure.
- The Town should monitor the placement of future septic systems keeping in mind the high permeability of many of Lyme's soils. The Town should consider monitoring septic system plumes with a focus on parcels adjacent to brooks and wetlands and in aquifer recharge areas in order to detect and deal with threats to ground and surface water quality.
- Erosion control plans should be a required part of every development project. Storm water management techniques such as rain gardens and low impact development should be incorporated in the development plans.
- The Town should refine and improve the Hillside and Ridgeline Conservation District to conserve the important natural and scenic features of the highest areas in Town.
- Efforts to conserve scenic views using voluntary scenic easements should be initiated to

complement the Hillside and Ridgeline Conservation zoning.

- Dense softwood stands provide significant benefits for deer, moose and other wildlife populations. Existing deer yards should be protected and opportunities to protect wildlife travel corridors should be explored. The Town should provide information to landowners on the importance of maintaining existing stands of dense softwood for the benefit of deer and other wildlife populations. The Town should identify areas that would be appropriate places to extend the existing softwood stands and connect patches of softwood in a continuum. Willing landowners should be encouraged to strengthen the network of dense softwoods particularly in areas abutting wetlands, streams and ponds.
- The Conservation Commission and landowners should continue to work to conserve lands by purchase and through conservation easements. As recommended in the *Natural Resource Inventory* the focus of land protection efforts should be on forest lands, wetland complexes and open space habitat and on habitat types not well represented in the current inventory of conserved lands including wetland complexes, permanent forest openings, dense softwood areas and on connectivity between such properties and already conserved parcels. Connectivity will protect wildlife travel corridors. The Conservation Commission should establish a priority ranking for these land protection efforts.
- Private conservation initiatives should be encouraged by providing landowners with information about conservation easements.
- The Town should continue to deposit all land use change taxes from the removal of land from current use in the Conservation Fund.
- The Town should consider a regular annual appropriation to the Conservation Fund. In addition, the Conservation Commission should solicit private contributions to the Conservation Fund on an annual basis.
- The Town should establish a Stewardship Capital Reserve Fund to be drawn on, if needed, to defend the conservation and zoning easements held by the Town.
- Agriculture should be preserved and encouraged, and its roll in land conservation highlighted.

Chapter 7 -Agriculture

Agriculture plays a unique and multifaceted role in Lyme: as a business, a provider of health and environmental benefits, a living link to Lyme's heritage and as a valuable way of life that positively impacts the entire population:

- Farming and forest-based enterprises act as both businesses and as preservers of rural character and open space. While some may entertain a sentimental appreciation of agriculture, for farmers it is, first and foremost, their livelihood. In the face of an extremely challenging and changing agricultural environment, this practical point needs emphasis. Farm and forest enterprises with open space provide enormous economic benefits far beyond the individual income and taxes paid. As of 1999, each acre of open space (not built up, excavated, or developed) provided \$1500 of economic benefit to the state and community.
- Additionally, lands in agriculture and other open space uses pay more in taxes than the costs to the community to provide services needed by those lands, resulting in a boon to school and town budgets.
- Because of the visual, tax and environmental bonuses that accrue to all - while the farmer bears the costs - Lyme should take a strong role in stabilizing and fostering active, productive locally owned farm and forest enterprises.
- Farmers selling their products locally, at farm stands or otherwise, provide both convenience and health benefits for all. Availability of locally grown food provides easy access to freshness and a level of trust that is otherwise unavailable.
- Agricultural uses provide many environmental benefits ranging from the open land of farms to the forestlands that filter our water, both of which supply homes for Lyme's varied and plentiful wildlife.
- Farmers and their way of life add richness to the community and a link to Lyme's heritage that is easily taken for granted. Children growing up in Lyme continue to appreciate that food does not magically appear in supermarkets and that wood products actually come from trees. This is due to the proximity and number of Lyme farms and forest-based enterprises that they can see in action every day.
- A business sector that brings so many benefits to the Town should be recognized as the valuable asset it is. Because of these many benefits, Lyme desires to encourage and protect the Town's agricultural heritage and resources as a viable and necessary aspect of the community's present and future existence: for its impact on the Town's cultural, economic and environmental stability, and as a basis for its rural, scenic, and aesthetic

character and for its contributions to maintaining and conserving open space and natural resources.

Farms in Lyme:

- Bailey's Turkey Farm
- Nichols Christmas Tree Farm
- Recordridge Farm
- Berway Farm and Creamery
- Acorn Hill Farm
- Steffey Maple Grove Farm
- Tensen's Farm
- Kaleib's Corn
- Kingland Farms
- Super Acres

Trends & Challenges:

At the 2012 Lyme Ag Forum, Steve Taylor, the former state Commissioner of Agriculture described the two current agricultural trends in the Upper Valley:

- One is the traditional bulk commodity approach, such as dairy farming. This approach requires a great deal of acreage (2 acres per cow) and is capital intensive, involving much leverage and debt. There is an increasing tendency towards consolidation among these farms as the average age of such farmers rises (currently at 60 years old). There are only two markets for milk causing the price to be *de facto* regulated, resulting in a very low return per dollar for the farmer. Lyme's remaining dairy farms are locally owned.
- The second trend in Upper Valley farming these days is referred to as "New" or "Niche" agriculture. This tends to be a younger demographic, often involving enthusiastic practitioners with less or even no background in farming. It requires far fewer acres, low debt and a focus on what the market wants. With Niche Agriculture, there is a much closer connection between producer and consumer.
- Given the problems both sets of farmers face and the benefits they provide, Mr. Taylor suggested Lyme should look for ways to enhance their ability to prosper and remain local. One way is for residents to commit to support these businesses at farm stands (and otherwise). He felt that requiring "best practices" and "Site Plan Review" were reasonable standards to have in place for farm stands.

Recommendations:

- Give agriculture and its associated outlets priority over other uses in suitable areas.
- Promote and support the establishment of a farmers' market in a commercially attractive location to help create new markets for locally grown products.
- Recognize that farming enterprises include agricultural accessory uses, such as farm stands among others.
- Regularly ask all resident farmers how the community can enhance the viability of agriculture in Town, and make recommendations accordingly.
- Periodically review the needs of Lyme's farms and when and if the need arises, create an Agricultural Commission.
- Encourage and make use of local and state tax relief policies and programs that recognize the economic realities of new and old farm buildings and land, and help preserve open space maintained by farmers. Consider tax rebates for certain agricultural uses.
- Insure that agricultural structures are assessed fairly, given their rapidly depreciating nature.
- New residential development next to existing farmland should provide its own buffer zone, if so desired.
- Inform potential abutters that farms have the right to carry out farm-related operations and will not be considered nuisances if best management practices are used.
- Encourage local shopping at Lyme farms

Chapter 8 -Business and Economy

Lyme is a small town with limited infrastructure and so is unable to support large employers. Larger communities offering more comprehensive services have been more attractive to businesses. For these reasons, Lyme’s economic base is small and many residents work in other communities. Lyme’s small businesses are nonetheless very important to the community, offering convenient goods and services, employment and a sense of place that serves to keep Lyme from becoming a mere bedroom community.

Commercial development

In the 2006 *Community Attitude Survey*, the townspeople were asked if Lyme should do more to encourage commercial development and if so what kinds of commercial development should be encouraged. The types of development favored or opposed in the survey are shown below:

Lyme should do more to encourage commercial development for:	Strongly Agree or Agree	Disagree or Strongly Disagree
Restaurants	57%	22%
Small scale high technology	50%	23%
Professional offices	50%	21%
Expansion of existing businesses	46%	21%
Dentists, hairstylists, etc.	40%	27%
New retail	40%	31%
Commercial recreational facilities	29%	37%
Inns and hotels	26%	42%

At the time of the survey, the Lyme Inn was closed along with its dining room and there were no other restaurants in Lyme. Since then Stella’s has opened and the Lyme Inn reopened following a major renovation.

The Survey also asked “Should Lyme’s zoning allow more areas for new commercial development?” 53% said no, 33% said yes and 14% did not respond to the question. Following the publication of the Community Attitude Survey, four neighborhood meetings were held to discuss the results. A consensus evolved at these meetings favoring an increase in the vibrancy of the villages and a wish to encourage more restaurants. Attendees identified the Lyme Common village (69 people) and Lyme Center village (50 people) as areas for future “village growth” with no other areas identified by more than seven people. In looking at corridors for future commercial growth, of the 107 respondents, 23 favored growth along the Orford Road (Route 10 north) and 20 along Dartmouth College Highway (Route 10 south), with only the Dorchester Road (state section) and East Thetford Road receiving more than one favorable response.

Employment and businesses

29% of the respondents to the 2006 *Community Attitude Survey* indicated that they worked in Lyme including 19% who worked at home. The largest area of employment was the Hanover/Lebanon area with 31% indicating they work there. (21% indicated that they were retired or did not work.)

The majority of Lyme businesses are small with fewer than 25 employees. Of the 21 businesses that are listed on the Town's website only three Skiway, School and town have more than 50 employees, and many of these are seasonal or part-time.

Recommendations

- The Town should consider the possibility of proposing revisions to the Town's land use regulations that would provide additional opportunities for small scale commercial development in the villages of Lyme Common and Lyme Center.
- The Town should promote small scale family farming and agriculture to help make Lyme more self-sufficient.
- The Town's land use regulations should be revised as appropriate to assure that new lodging accommodations will be appropriately designed and scaled.
- The Town's land use regulations should be revised as appropriate to promote the maintenance of agricultural land and sizeable tracts of forest land to provide local employment and a working landscape.

Chapter 9 -Recreation

Recreation includes the activities Lyme residents do for fun as well as the programs offered by the Town. There is a high level of participation in recreation programs and a high degree of satisfaction with both the passive and active ways Lyme residents have fun. Access to recreation areas and programs is positively linked with healthy lifestyles.

Lyme's natural environment offers amazing venues for recreation. In the summer, swimmers, boaters and fishermen head for the Connecticut River, Post Pond and Reservoir Pond. Public facilities are located on all of these water bodies. The slopes of Winslow and Holt's Ledges have been developed for skiing. The varied ecosystems across Lyme attract birdwatchers. Stream corridors, trails, and back roads are all used recreationally.

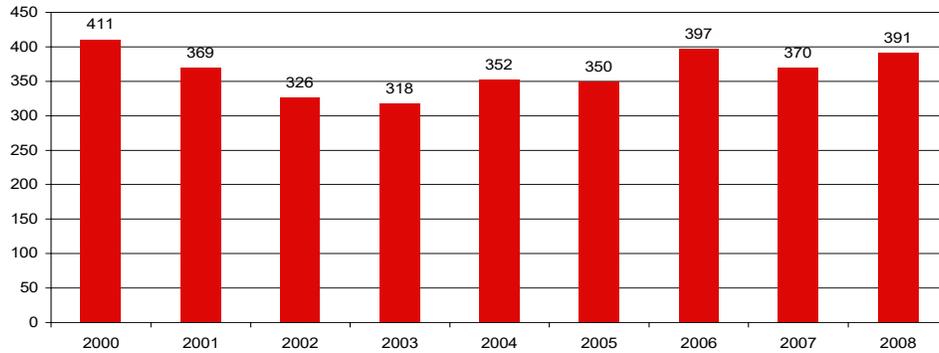
Of particular importance for recreation in Lyme are its trails. The Appalachian Trail and Class VI roads create a trail system that is enhanced by trails in the Town Forest and Trout Pond Forest and on private lands, many of which are open to the public. Mountain biking on Class VI roads and on routes made available by private landowners is also popular. Cross country skiing, snow shoeing and snowmobiling are favorite winter sports made possible thanks to generous landowners who open their land to these uses.

As important as these opportunities for active recreation are, "passive" recreational activities are also important to many townspeople. These vary from the gardening events held by the Lyme Gardening Club, to the armchair travel, computer and knitting lessons offered at the Lyme Library and the flea market on the Common during the summer months. These are important recreation activities that appeal to a broad spectrum of Lyme residents and build community in our Town.

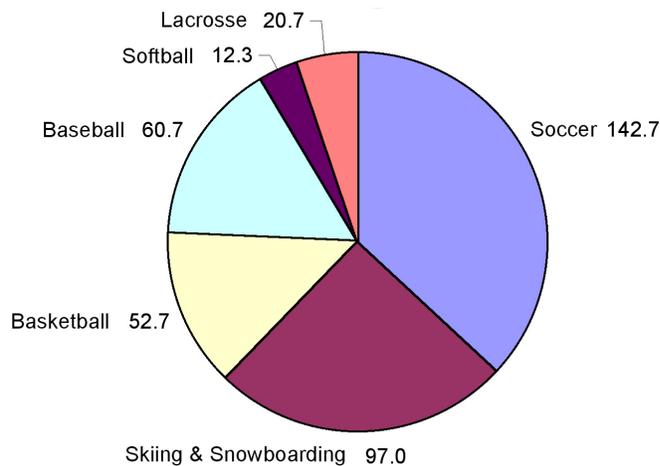
Youth Sports and Recreation

Since the establishment of the Recreation Commission in 2004 the Town has taken over responsibility for the management of the youth sports programs from the former Lyme Athletic Association. Current sports include: soccer, skiing, snowboarding, basketball, baseball, softball and lacrosse. In the past cross-country skiing, rock climbing and track were offered. Participation in these programs is shown below. The totals include multiple counting of participants in more than one sport.

Participants in Youth Sports Programs



The average number of participants in the six most popular programs between 2000 and 2008 are shown below.



In addition to the sports programs, the Town operates a summer day camp for children ages 4 through 5th grade. During 2008 the program ran for four weeks with an average of 45 children participating in Red Cross swimming lessons, arts and crafts, reading, drama and sports.

Adult Recreation

In the 1974 Community Attitude Survey 82% of respondents agreed that there were adequate outdoor recreational opportunities in Lyme. In the 2006 Community Attitude Survey respondents indicated that they participated in the following recreational activities:

Activity	At Any Time	Most Participated
Walking/running	75%	52%
Hiking	62%	43%
Cross-country skiing	48%	26%
Swimming	47%	21%
Road biking	36%	17%
Fishing	25%	9%
Skating	24%	3%
Mountain biking	22%	8%
Hunting	15%	9%
Downhill skiing/snowboarding	12%	7%
Organized team sports	11%	3%
Snowmobiling	9%	3%
Horseback riding	9%	3%

The 2006 survey also asked which recreational facilities should be added to or improved:

Activity	Strongly Agree or Agree	Disagree or Strongly Disagree
Boat access to river	48%	20%
Hiking trails	48%	17%
Cross country skiing trails	44%	18%
Picnic areas	40%	21%
Indoor gym for fitness equipment	30%	35%
Skating	25%	22%
Horseback riding trails	22%	26%
Tennis	20%	32%
Basketball	16%	30%
Snowmobile trails	16%	39%
Swimming pool	16%	48%
Indoor gym for team sports	15%	40%

Recommendations

- The Town should continue to make investments in open space lands for recreational use, including trails and access to water resources, especially the Connecticut River.
- The Town should continue to provide venues for passive recreation such as community gathering spaces.
- The Town should continue the multi-year agreement with Crossroads Academy for use of their Shoestrap Road playing field for the Town's youth sports programs and general public use of their cross-country ski trails.
- The Town should encourage private landowners to apply for the recreational discount on their current use land thus providing public access to the land

Chapter 10 -Historic and Cultural Resources

Lyme was founded in 1761, one of many towns to receive a charter from Royal Governor Benning Wentworth that year. With the close of the long French and Indian War, settlers from increasingly crowded areas of Connecticut and Massachusetts moved to the new lands in the Connecticut River Valley. By 1781, Lyme (or Lime in early documents) had some 57 dwellings and a meetinghouse. By 1790, the first census conducted by the newly independent nation counted 816 people. Thirty years later, Lyme's population reached its high-water mark of 1,824, held around there for 10 years, and began a long decline.

By the 1820's, Lyme's farmers had shifted their focus from crops to merino sheep, clearing yet more land. But the great sheep boom was relatively short-lived as wool from the West, Australia and New Zealand pushed prices down after the Civil War. As sheep farming declined, dairy farming increased but could not take up the economic slack. Farmers returned from the Civil War with tales of fertile lands to the west, and the Erie Canal (opened in 1825) made it easier to reach them. At the same time, the rapid increase in rail networks made it easy for young people to seek work in the booming mill towns, close by in Lebanon and Claremont. Further away, Manchester, Lawrence, and Lowell beckoned. Many farms were abandoned, especially in east Lyme, and the dwindling population concentrated in the valleys, along brooks, and in Lyme Plain and Lyme Center. Although the Town maintained a surprisingly diverse local economy over the ensuing decades, with farming, water-powered mills turning out a variety of products, and all types of lumbering, its population hit a low of 830 in 1930. With tourism, skiing, summer people, and the growth of Dartmouth College, Lyme's population began to grow again after World War II. In the Town's 250th year of 2011, the population stands at an estimated 1,716, more than double the low point of 830 but below the peak of 1,824.

From the mid-1800s on, Lyme's landscape and people were documented by photographs, thousands of which are in the Lyme Historians' custodianship. Even as the population declined, the Town remained close-knit, industrious, and forward-looking. Religion, education, culture, friendship, and fun were greatly valued.

Historic Preservation

Over the decades, many structures in Lyme were lost to fire, as were valuable town records, and many structures were abandoned and rotted away, but few were torn down to make way for new ones. Thus, the Town retains a definite "sense of place." The village areas of Lyme Plain and Lyme Center look remarkably like the earliest photographs of approximately 1860. Lyme has many homes and buildings over 100 years old, including some dating to its first decades. The Town's history and historic appearance are recognized as valuable assets. While the Town has placed no restrictions on the care or maintenance of historic structures, there have been notable community and individual efforts to preserve the Town's legacy. In 2011, residents voted to establish a Heritage Commission in accordance with NH RSA 673:1. The Commission has no regulatory authority but will serve to advise Town boards and raise general awareness of the value of historic assets to Lyme's cultural and economic life.

Awards

The Town has a long history of preserving and enhancing its historical and cultural resources, including granting historic preservation easements for agricultural buildings (see Figure 9-1). Preservation efforts, usually funded by private donations, have been recognized by awards from the State's Division of Historic Resources, specifically the Lyme Center Academy building (2001) and the 27 horse sheds in Lyme Plain (1987), the longest surviving row of horsesheds in New England.



Lyme Center Academy building



Lyme Horse Sheds

Land Use Controls, Organizations and Surveys

Section 1.20 of the Lyme Zoning Ordinance establishes the purposes of the Ordinance including to “enhance and preserve the natural, man-made, visual, and historical amenities of Lyme.” Section 10.40 of the Ordinance provides for special exceptions to the Ordinance, subject to various conditions, including the protection of significant historic features. Section 11.1.11 of Lyme’s Site Plan Review Regulations allows for the protection of historic and archaeological resources that might be adversely affected by development that is subject to site plan review

In 1961, the Lyme Historians, a private, nonprofit organization, was founded to promote awareness of Lyme’s history and preserve historic and cultural artifacts.

Community attitude surveys conducted in (1974, 1981, and 2006) show consistent and overwhelming support for preserving Lyme’s historic features. In 2006, “improving or enhancing historic sites and structures” had the highest overall favorable response of any item on the survey.

In 2011, a Heritage Commission was established pursuant to newly enacted state law by unanimous vote at Town Meeting. Appointed by the Select Board, the Commission can conduct inventories of historic assets, be a resource for Town government and private residents, and generally raise awareness of the Town’s history. The Commission is advisory in nature and uses

no tax revenue. If the Town so votes in the future, the Commission can accept and expend funds for a non-lapsing heritage fund. This fund could acquire and manage property and hold preservation easements (RSA674:44-b.)

Historic Listings

The Lyme Common Historic District was listed on the National Register of Historic Places in 1988. Five major and two minor roads meet at the long, narrow, east-west Common. Architectural historians consider the District to be significant as a largely intact and unified traditional rural New Hampshire townscape possessing integrity of architectural design, setting, building materials, workmanship, and associated with important local people and events. The District comprises more than 60 primary structures and outbuildings on the Common and intersecting roads. (See Figure 9.2) The National Register is the nation's official list of historical resources worthy of preservation. (The District is *not* a town-designated historic district with associated protection or design limitations.)

For a detailed "tour" of the central area of the District and architectural features of the buildings in the district see the "Historic Lyme Common" booklet listed under *Resources* on page 10-7.

The Lyme Center Historic District was listed on the National Register of Historic Places in 1987. First known as Cook City, Lyme Center was settled by James Cook, who came from Connecticut in 1783 to land located on today's Baker Hill and Dorchester Roads. His tavern, mills, and 14 children helped the area prosper, and more settlers came when more land became available after his death in 1812. The District comprises 17 primary structures and many outbuildings, most pre-dating the Civil War, in what historians describe as a "cohesive architectural village grouping." (See Figure 9.3) Grant Brook forms the southern boundary of the District and played a major role in the area's development, providing power for a succession of mills and small industrial enterprises. For details, see "A Look at Lyme Center" listed under *Resources*.

The Moses Kent House on the Connecticut River is Lyme's only individual entry on the National Register of Historic Places. An outstanding example of a Federal-style farmhouse, it was built in 1811 and survives virtually unaltered both on the exterior and interior. Of particular significance are the many wall murals painted by early 19th century itinerant painter and inventor, Rufus Porter. The house is a private residence, and not open to the public. The house is also protected by a conservation easement held by the NH Preservation Alliance.



The Edgell Covered Bridge spans Clay Brook near its confluence with the Connecticut River. Listed on the New Hampshire Department of Transportation's list of historic bridges, it was built in sections on the Lyme Common in 1886 by John Piper and his son, Walter, owners of a sawmill. It is 132' long with a clear span of 111'2", an overall width of 21'3" (roadway 16'3") and a maximum vertical clearance of 12'7".

The Smarts Mountain Lookout Tower on the Appalachian National Scenic Trail is listed on the National Historic Lookout Registry because of its unique history and spectacular view. It rests on public land locally administered by an agreement between the National Park Service and the White Mountain National Forest. Succeeding a tower built in 1915, the current steel tower stands 41' high with a 7' x 7' cab. It was the last international derrick tower in NH built with emergency funds after the 1938 hurricane.

Note: None of the historic registers mentioned above provides any official protection to structures listed on them. National Register listing does provide some protection from potentially negative effects of state or federally funded, licensed, or assisted projects, for example, highway or road construction (Section 106 of the National Historic Preservation Act).

Historic Agricultural Structures Discretionary Preservation Easements

Lyme is a leader in granting these easements under state law RSA 79-D. Such easements reduce property tax assessments of the buildings and directly associated land by 25% to 75% in return for preservation by the owner. In deciding the amount of the assessment reduction, the Board of Selectmen consider the following: the structure's scenic quality; the public's access or participation in enjoyment of the structure; its historic importance; its condition; and the public benefit obtained versus the revenue lost if the easement is accepted. Figure 9.1 shows the structures protected by easements granted to Lyme under this program.

Other Historic Assets in Lyme

In addition to scores of houses over 100 years old, Lyme has a handful of original stone culverts, many miles of stone walls, and over 100 cellar holes. Lyme's cellar holes, a legacy of the long population decline, were mapped by James Goldthwaite, whose seminal 1927 study, "A Town That Has Gone Downhill," has been reprinted by the Lyme Historians (see *Resources*). In 2008, the Lyme Historians initiated a multi-year project to document these important vestiges of Lyme's past houses, barns, taverns, mills and other features of a vanished landscape.

With the assistance of the New Hampshire Department of Historic Resources, the Lyme Heritage Commission intend to compile an official inventory of Lyme's historic assets as an aid to the Town government, particularly the Select, Planning, and Zoning Boards, as well as all residents.

Recommendations

- The Town should amend the Lyme Zoning Ordinance to allow by special exception the waiver of those requirements of the Ordinance that, if applied, would detract from the historical character of (1) any structure wherever located in the Town that is more than 100 years old and (2) any structure listed on the National Register of Historic Places (individually or as a “contributing structure” in an historic district) or on the New Hampshire State Register of Historic Places.
- The Town should amend the Lyme Zoning Ordinance to deny any special exception to change any structure listed on the National Register of Historic Places (individually or as a “contributing structure in an historic district”) or on the New Hampshire State Register of Historic Places, where such changes would have a material negative effect on the historic resource.
- The Town should consider amending the Lyme Zoning Ordinance to require that any new structure or any alteration of any existing structure located either in the Lyme Common or the Lyme Center Historic District be in keeping with the character of the buildings located in the district.
- Town road maintenance should be carried out so as to protect the historic stonewalls and stone culverts along the roads.

Resources

Preserving Community Character: A Preservation Planning Handbook for New Hampshire, published by the New Hampshire Preservation Alliance. 2006.

Pattern and Pieces--a history of Lyme published by Lyme Historians, L. Cole, editor, 1976.

We Had Each Other: A Spoken History of Lyme—oral histories by long-time residents published in book form by the Friends of the Lyme Library, J. Russell, M. Daupenspeck, editors; C. Vredenburgh, illustrator. 2000.

Lyme--a photographic history in the Images of America series by J. Fant, J. Russell, and S. Ramsden, Arcadia Publishing. 2006.

“A Town That Has Gone Downhill”--a 1927 study of Lyme’s changing economy and land use by James Goldthwait; reprinted by Lyme Historians

“Highways and Trails in the Town of Lyme” by R. Jones, a detailed description of the location and history of Lyme’s current and former roads; February 2007 edition.

Proud to Live Here--in the Connecticut River Valley of Vermont and New Hampshire-- by R. Ewald with A. Mulligan, published by the Connecticut River Joint Commissions. 2003.

Lyme Historians’ photo collection and Museum, Lyme Center Academy Building; open Tuesday mornings and by appointment

Booklets published by the Lyme Historians

“Historic Lyme Common”—by A. Mulligan. Details features of all structures in the Lyme Common Historic District. 2008.

“Lyme Common 1785-1977, Part II” by D. Sears. Provides narratives about activities and structures on the Common.(Part I is the Lyme Common chapter in *Patterns and Pieces*.). 1977.

“A Look at Lyme Center” – Details features of structures in the Lyme Center Historic District. 1997.

“Historic School Houses of Lyme” – by A. Mulligan. Describes features, history, and locations of schools in Lyme’s 16 school districts prior to the 1959 consolidation. 2011.

“John Thompson’s Church” – by L. King. A history of the Lyme Congregational Church. 1964.

“The General Store”– by D. Sears. A history of the Lyme general store from 1795 to 1970.

“A Page from the Past”—by H. Wing. Reminiscences of growing up in Lyme from 1905 forward.1989.

Converse Free Library: The Lyme Room contains books on Lyme and New Hampshire history, including New Hampshire’s Civil War participation, as well as genealogical resources, electronic and print.

Figure 9-1 - Historic Agricultural Structures Easements

Historic Agricultural Structures Easements		
 <p>11 North Thetford Road 50% easement granted</p>	 <p>25 Market Street 25% easement granted</p>	 <p>30 Citadel Lane 50% easement granted</p>
 <p>1 Pinnacle Road 70% easement granted</p>	 <p>4 Creamery Lane 25% easement granted</p>	 <p>1 Pinnacle Road 25% easement granted</p>
 <p>182 Dorchester Road 50% easement granted</p>	 <p>175 Dorchester Road 45% easement granted</p>	 <p>99 Whipple Hill Road 40% easement granted</p>

Figure 9-2 - Lyme Common Historic District

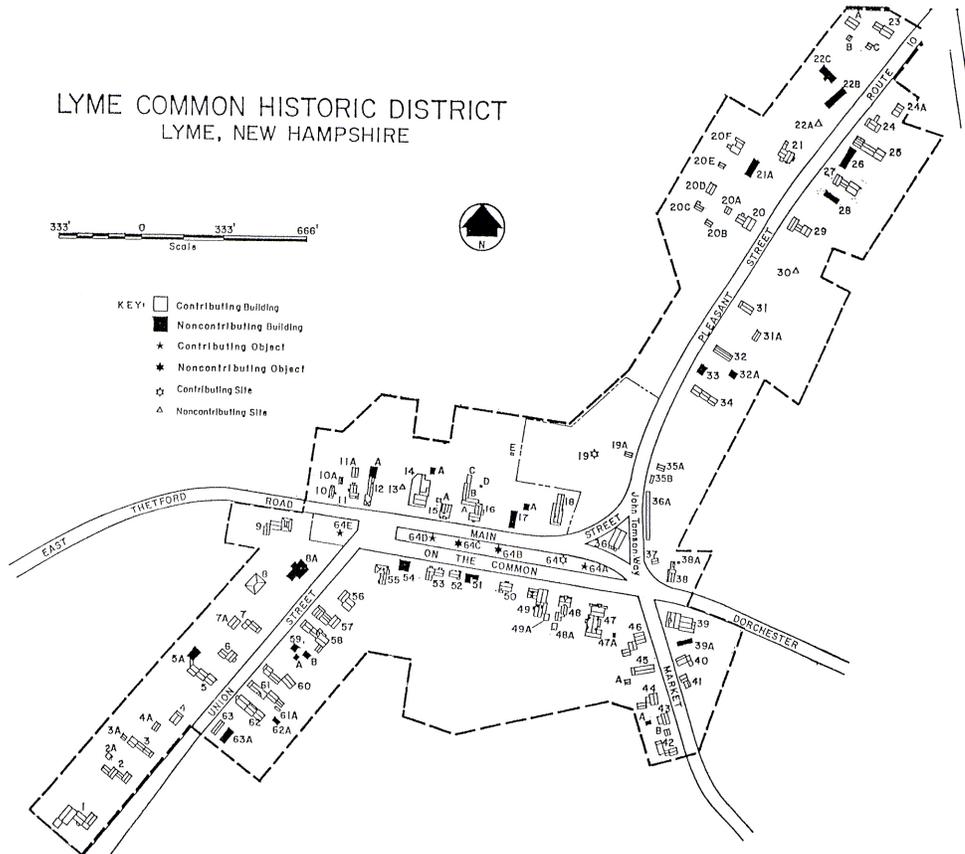
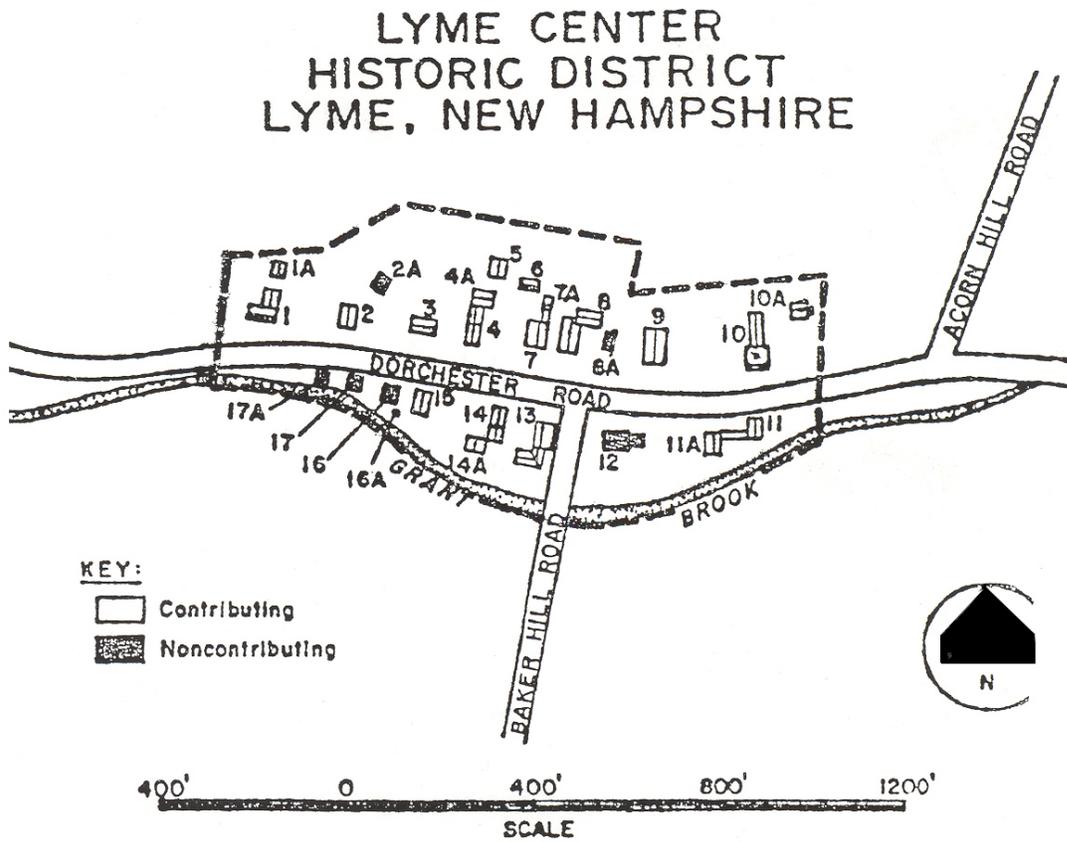


Figure 9-3 - Lyme Center Historic District



Chapter 11 -Lyme's Energy Transition

Introduction

Located in a rural part of a state with high heating demand, no domestic fossil fuel resources to speak of, among the highest electricity prices in the nation, and an economy susceptible to climate change, Lyme must be increasingly cognizant of issues surrounding energy consumption. The only energy resources native to Lyme or to New Hampshire (or even to New England) more broadly are renewable resources such as solar, wind, biomass, and hydropower. Conveniently, the intertwined imperatives of averting the worst effects of climate change and strengthening local resilience require that these same native renewable energy resources are the very resources to which Lyme should be transitioning. Fortunately, steep and ongoing cost declines in the technologies that convert these renewable resources to usable forms of energy increasingly enable a transition to these clean, renewable, and local resources to result in energy bill savings—providing yet another strong inducement for adoption.

Lyme's energy consumption can be broken down into three broad end-use categories: electricity, transportation, and heating. Electricity already powers much of our daily lives, and our consumption of it will most likely grow as our economy becomes increasingly digital in nature (i.e., conducted on computers) and as electrified transportation and heating options become more available and mainstream. Beneficial electrification replaces direct fossil fuel use (e.g., propane, heating oil, gasoline) with electricity in a way that reduces overall emissions and energy costs. There are many opportunities across the residential and commercial sectors. This can include switching to electric vehicles or electric heating systems – as long as the end-user and the environment both benefit.ⁱ Transportation is also critically important to Lyme, given its rural geography and its distance from major employers, hospitals, and other services. New Hampshire's small population is concentrated in the southeastern part of the state. However, the state's natural beauty and proximity to other northeastern population centers draws many visitors and part-time residents whose travel and second homes add to the state's energy use. The residential sector leads state energy consumption even though about 1 in 10 New Hampshire homes are only seasonally occupied. The transportation sector's energy use follows the residential sector's closely, and each of those sectors consume nearly one-third of the energy used in the state [EIA July 16,2020].ⁱⁱ

In short, all three of these end uses of energy—electricity, transportation, and heating—are important, and deserve thoughtful consideration within Town planning and zoning forums (including this Master Plan), in order to minimize the cost of meeting Lyme's energy needs, safeguard against unpredictable energy price shocks, support Lyme's economy (e.g., skiing and the local restaurants and inns that benefit from it), protect Lyme's natural environment, and generally improve the quality of life in Lyme. To this end, at its 2020 Town Meeting, the Town voted overwhelmingly to collectively pursue the goal of achieving 100% reliance on clean, renewable sources of electricity by 2030 and clean, renewable sources for all other energy needs,

including for transportation and heating, by 2050. Lyme’s volunteer Energy Committee has begun working to implement these goals—details on which are provided later in this chapter—but achieving them will ultimately require widespread and concerted action on the part of all Town employees, elected officials, volunteer committees, and citizens. As such, these goals, and the topic of energy more broadly, deserve prominent visibility within Lyme’s Master Plan (and not just within this dedicated chapter—this topic should permeate all sections of the Master Plan).

This chapter begins by stepping through each of the three end uses of energy noted above—electricity, transportation, and heating—to provide the current lay of the land, and to document recent progress on the path to a more-sustainable energy future, in Lyme. Next, we provide more details surrounding the ambitious but achievable energy transition goals adopted at Town Meeting 2020, along with their broader implications for the Town. Finally, the chapter culminates in a series of recommendations to guide the Town as it embarks upon and progresses towards this important energy transition.

Electricity

Lyme is served by two electric utilities. The New Hampshire Electric Cooperative (NHEC) serves the central part of the state, including eastern and northern portions of Lyme. Eversource, an investor-owned utility with a service territory that covers much of New England, serves the western part of Lyme.

Both utilities are subject to New Hampshire’s *Renewable Portfolio Standard* (RPS), a policy that requires load-serving entities to include a minimum share (that gradually increases over time) of renewable resources within their power mix. In 2021, New Hampshire’s RPS required a minimum share of 21.6% renewables; that floor will increase by 0.9 percentage points per year until reaching 25.2% in 2025 (and thereafter). The 21.6% requirement for 2021 is broken down into a handful of sub-categories, including 9.6% “new renewable energy” (which includes new wind, solar, ocean, hydropower, biomass, and methane energy), 1.8% thermal renewable energy (discussed in a later section on heating), 8% existing biomass and methane, 1.5% existing small hydroelectric, and 0.7% new solar. In other words, less than half of the state’s 2021 RPS requirement of 21.6% supports “new” forms of renewable generation like wind and solar; moreover, at the time of writing, the RPS targets do not continue to increase past 2025, stopping at just one quarter of the total power mix in that year. As such, state policy leaves plenty of headroom for utilities and consumers to go further in terms of both the quantity and quality of renewable resources serving their needs.

This table shows the composition of NHEC’s and Eversource’s power mix in 2019. While renewable resources made up almost half of NHEC’s power mix (much of it coming from hydropower), they accounted for just 18% of Eversource’s portfolio (much of it coming from biomass). Wind and solar contributed just 7.1% of NHEC’s mix and only 1.6% of Eversource’s. With Eversource barely complying with New Hampshire’s modest RPS requirement, and with that requirement currently scheduled to sunset at just

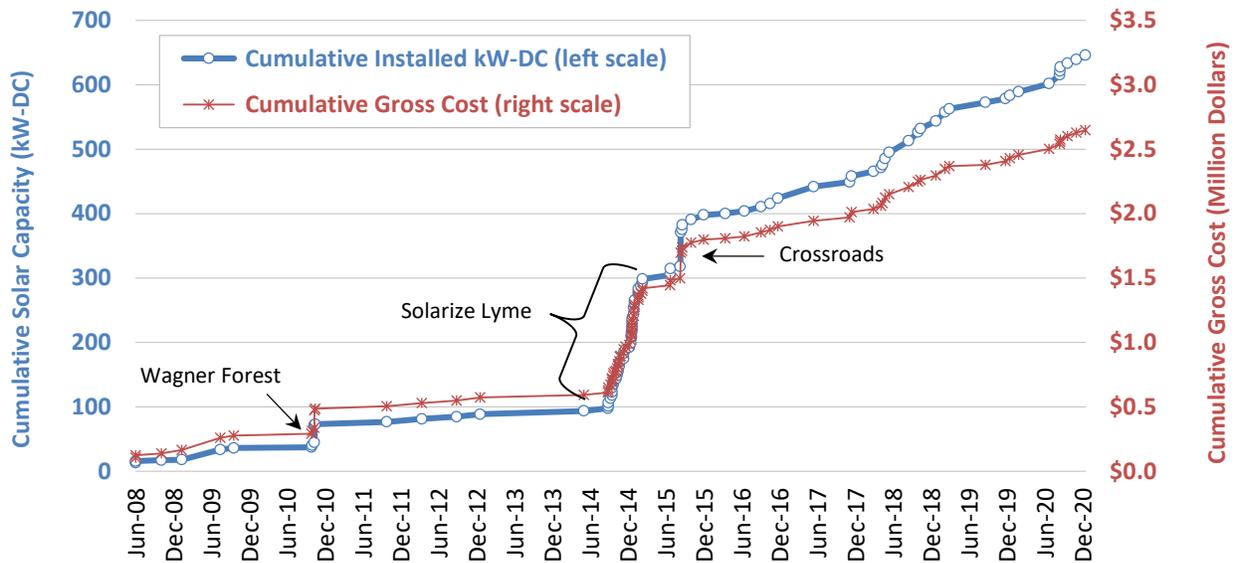
	2019 Power Mix	
	NHEC	Eversource
Biomass/Wood	0.9%	12.5%
Liquid Biofuels	0.0%	0.3%
Landfill Gas	4.7%	0.7%
Municipal Solid Waste	0.2%	0.3%
Hydroelectric	34.2%	2.6%
Solar Photovoltaic	1.6%	0.5%
Wind	<u>5.5%</u>	<u>1.1%</u>
Total Renewable	47.0%	18.1%
Coal	1.4%	2.2%
Diesel	0.0%	0.5%
Natural Gas	23.0%	35.4%
Nuclear	12.7%	19.6%
Oil	3.3%	4.6%
Imports	<u>12.6%</u>	<u>19.6%</u>
Total Non-Renewable	53.0%	81.9%
Total	100.0%	100.0%

25.2% in 2025, it is likely that Lyme will need to go above and beyond what the local utilities are delivering in order to achieve its goal of 100% renewable electricity by 2030.

Not only is the electricity delivered over the grid by Lyme’s utilities predominantly non-renewable (especially in the case of Eversource), it is also relatively expensive. In 2020, New Hampshire ranked 9th out of 50 on a list of states with the highest residential electricity prices. Although this is one “top ten” list that most states would presumably prefer to avoid, there is a silver lining: the high cost of electricity in New Hampshire—~18 cents/kWh for residential customers—provides a strong economic inducement for consumers to look for ways to avoid that high cost.

In recent years, the Town and its citizens have pursued electricity bill savings primarily by reducing consumption through energy efficiency measures and/or by installing solar photovoltaic (PV) systems. On the efficiency front, Lyme’s Energy Committee spearheaded an LED lighting upgrade at the Town’s highway garage and Town Office buildings in 2017—an investment with a simple payback of just a few years. And, in 2018, Lyme participated in the “Weatherize Upper Valley” campaign led by Vital Communities, which resulted in more than 100 home energy audits and nearly 30 weatherization contracts (though this campaign was targeted more at heating than electricity).

Lyme has also aggressively pursued solar photovoltaics (PV), at one point holding the distinction of having the highest amount of PV capacity installed per capita of any town in New Hampshire. Even though New Hampshire’s solar resource is rather limited and not as strong as in other states (e.g., Arizona), the high cost of electricity in New Hampshire makes even a sub-optimal solar resource economically viable. The figure below depicts historical PV deployment in Lyme through the end of 2020: 89 residential and 4 non-residential (Wagner Forest Management, Lyme School, Crossroads Academy, and Lyme Town Office) systems totaling 645 kW_{DC} of capacity and more than \$2.6 million in gross investment.



In 2014, Lyme’s Energy Committee joined forces with Vital Communities on a “Solarize Lyme” campaign, which resulted in 40 residential PV installations within a very compressed period. Notably, the pace of PV adoption since Solarize Lyme has been roughly three times as fast as it was prior to Solarize Lyme, suggesting that the experience of seeing so many neighbors living successfully with PV has bred familiarity with the technology, encouraging other residents to adopt as well. With roughly 840 total housing units in Lyme (~730 of which are occupied full time), roughly 11% of Lyme homes had installed PV through the end of 2020. This ~11% penetration rate is an order of magnitude higher than the national average of roughly 1%.

In 2017, Lyme’s Energy Committee worked with the Town to install an 18 kW_{DC} PV system on the roof of the Town Office building—without needing to raise any money from taxpayers. The post-rebate cost of the system was financed entirely by a \$5,000 grant from the Lyme Foundation and a 10-year, 2% interest loan for the balance. The system has now been operating reliably for 4 years, and even though this PV system was unable to benefit from the solar 30% Federal investment tax credit (due to the Town’s tax-exempt status), the system has nevertheless been slightly cash flow positive since day one—despite having to service the loan. Once the 10-year loan has been fully repaid, this system should generate several thousand dollars per year in electricity bill savings, for many years to come.

Looking ahead, solar is likely to continue to play a significant role in progressing towards Lyme’s 2030 goal of 100% renewable electricity. In addition to ongoing residential adoption and several larger systems on Town buildings (the library and the new fire station are currently the most-promising candidates), group net-metered solar projects, to which residents can subscribe, might be another way to reach residents who do not own their own home or have a suitable site for solar. These projects are defined as net-metered renewable energy facilities, known as *hosts*, that share the proceeds from surplus electricity generation with other electric utility account holders, known as *group* members. Group members do not have net-metered

renewable energy facilities and do not have to make any changes to their existing electric service.

The shift in control of Congress in 2021 has many expecting that tax credits for solar (and other clean energy technologies) will be extended (that said, the Town Office PV system demonstrates that it is possible for PV to pencil out in Lyme even without the benefit of the Federal tax credit). Moreover, the cost of PV technology is widely expected to continue to decline—which has many excited about the possibility of carbon-free transportation (via electric vehicles, covered in the next section) and possibly even carbon-free heating (via electric heat pumps, covered in a later section).

Another potential strategy that Lyme could employ to both save money and ensure that its electricity is coming from clean renewable sources is by pursuing New Hampshire's Community Power program – either as its own entity or as a partner in an existing community power program. Community Power, authorized under [NH RSA 53-E](#), democratizes energy governance by empowering towns, cities and counties to choose where their electricity comes from on behalf of their residents and businesses, work with utilities on local energy infrastructure upgrades, and provide electricity supply rates and services to all customers participating in the program.

Community Power programs serve as the default electricity supplier within the municipality and are self-funded through the revenues received from participating customers.

Local electric distribution utilities continue to own and operate the "poles and wires", and deliver electricity to all customers in the municipality.

Community Power programs may also offer innovative services and rates for customers on an "opt-in" or "opt-up" basis, such as 100% renewable premium products, time-varying rates and Net Energy Metering generation credits for customers with solar photovoltaics.

Prior to launch of a Community Power program, all eligible customers are mailed notifications and provided the opportunity to opt-out or opt-in to the program, depending on whether they currently take service from a Competitive Electric Power Supplier or are on default service provided by local electric distribution utilities:

Customers currently on utility-provided default service will be notified, provided the opportunity to decline participation, and transferred to the Community Power if they do not "opt-out". These customer notifications will include the initial fixed rate for the program's default service compared with the utility default service rate, be mailed to customers at least 30 days in advance of program launch, and provide instructions for customers to decline participation (for example, by return postcard, calling a phone number or using a web portal).

Customers who previously chose to take service from a Competitive Electric Power Supplier will be notified and may request to "opt-in" to the program.

Any new customers that move into the municipality in future will be automatically eligible to receive default service from the Community Power program and will be sent a notification in the mail.

All customers supplied electricity from Community Power programs are free to switch back to the utility-provided default service, or to take service from a Competitive Electric Power Supplier, by opting-out of the program and switching suppliers in advance of their next billing cycle.

The first step is for the Lyme Select Board to establish a Lyme Electric Aggregation Committee (LEAC) to explore ways to take advantage of NH's Community Power Law by either joining a regional Community Power Program or developing its own. This committee would do the necessary research and then determine whether it would be advantageous for Lyme to pursue this. Before Lyme can implement or join a community power program, the voters would need to pass a specific proposal.

Transportation

Many Lyme residents commute to towns just to the south of Lyme—Hanover, Lebanon, White River Junction—where there are a number of large employers (a college, several hospitals, manufacturers, etc.) as well as one of several high schools that Lyme students can attend. Most transportation to/from Lyme is by single-family cars/trucks, because, other than daily school buses, there are currently no public transit options linking Lyme to the Advance Transit (AT) networks to the south. Recent conversations with AT (November 2020) reveal that there are no plans for an AT route to Lyme in the near future (a rough estimated cost of such a route is about \$300,000/year). An existing option is Stagecoach Transportation's "River Route," which stops at the newly-renovated Thetford Park-and-Ride and goes to Hanover, but is inconvenient in several ways: one still must get to the Park-and-Ride, and there is only one bus a day in each direction.

Fortunately, advances in technology mean that electric vehicles (EVs) are now viable options for our region. A number of factors have improved considerably:

- Range. Now there are multiple EVs with ranges of more than 250 miles to a charge, made by Tesla, Nissan, Chevrolet, Mitsubishi and others.
- Winter hardiness. These same makes listed above are owned by a number of people in Lyme and the Upper Valley in general, and have been found to be at least as reliable (if not more so) than comparable gas-powered cars in the winter in terms of handling. While EV range decreases in winter, owners have not found this a problem (about a 25% decrease).
- User base. As mentioned above, there is a growing user base and network of EV owners from whom to get information.

A second option is a plug-in hybrid (PIH) vehicle, which uses an electric motor exclusively for a certain range (generally up to 50 miles or less) and then shifts to a gas engine. For local trips, the gas engine might not be used at all, and owners have gone for weeks or months without having to fill the tank.

At the time of writing, there are at least 13 EVs and 13 PIHs owned by Lyme residents; encouragingly, 12 of these 19 vehicles were purchased in the past year. A survey of Lyme EV/PIH owners found near-universal satisfaction. Reasons for purchasing an EV include:

- Performance: EVs out-perform most gas-powered automobiles, particularly in terms of acceleration (e.g., instant torque)
- Low maintenance: EVs require no oil or fluid changes, so that bi-yearly trip to the service center is eliminated.
- Reduced cost over time: While the purchase price of an EV is still higher than for a comparable gas-powered car, the reduced maintenance costs over time and the fact that the electricity cost per mile is generally cheaper than gasoline or diesel costs mean that the total owner cost over time is less.
- Lower greenhouse gas (GHG) emissions: The amount of actual GHG reduction depends on how the vehicle is charged (see below) but, given the energy mix used by the electricity providers for Lyme (see previous section), EVs are always better on this front than gas-powered cars.
- Less noise and fumes, so we can better enjoy the Upper Valley.

More information on Lyme EV owners (including contact info) can be found at the website listed at the end of this section.ⁱⁱⁱ

To address the GHG emissions issue in greater detail, the extent to which an EV impacts GHG emissions depends on the charging method. Most EV owners charge from home. A number of EV owners in Lyme have solar panels, which means that their GHG emissions are essentially zero for the % of electricity they derive from those panels. If the electricity is coming from NHEC or Eversource, their non-GHG sources amount to about 59% and 25%, respectively (these numbers include both nuclear and landfill gas, and exclude biomass—see the 2019 Power Mix table earlier in this chapter). It would be most beneficial to encourage adoption of both EVs and solar systems, to have the highest impact on GHG emissions.

Finally, biking is a viable (if vigorous) option in Lyme, in view of the wide and well-paved shoulder on Route 10 between Lyme and Hanover in both directions. A number of Lyme residents commute to Hanover by bike when weather permits. While this may not be an option for many commuters, E-bikes are becoming widely adopted in the Upper Valley.

Heating and Cooling

Due to Lyme's northerly climate, energy consumption for heating is significant. As of 2017, there were 528,700 occupied housing units in New Hampshire, and housing data includes the type of heating fuel for those occupied housing units. Unlike many other regions of the country, access to utility natural gas in New Hampshire is relatively new and mostly restricted to the

southern portion of the state. That, in part, may explain why the largest portion of homes, over 40 percent, used fuel oil or kerosene as the primary heating fuel. Utility gas was the primary heating fuel for another 20 percent of homes, followed closely by 17 percent of homes using bottled, tank, or LP gas as the primary heating fuel. Electricity was the type of heating fuel for nine percent of occupied homes, and wood provided heat for another seven percent. Less than three percent of occupied homes used some other type of heating fuel, and less than one percent did not use heating fuel.^{iv}

Switching homes off fossil fuels to other sources, particularly electricity, is often seen as an important step in reducing greenhouse gas emissions because the electric grid can be cleaned up in ways that fossil fuels cannot.

Because there are no natural gas pipelines in Lyme, fossil fuel heating options are limited primarily to fuel oil and propane. Wood is in widespread use, both in traditional (e.g., wood stove) and modern (e.g., pellet boilers) forms, and there is a significant local wood pellet industry in Lyme and surrounding towns. Residential adoption of wood pellet boilers reached 25 households in 2020.

In addition, the Town of Lyme has been a pioneer in terms of using wood pellet boilers for municipal heating. In 2002, the Town installed two wood pellet boilers, one of the first installations of bulk fed pellet boilers in the area, at the Town Highway Garage. In 2014, the Lyme School heating system was upgraded from fuel oil to two pellet boilers as primary heat with a propane backup. The system became one of the first systems in the state to qualify for and to sell thermal RECs (renewable energy certificates). Thermal RECs are currently worth about \$22.00 per Megawatt hour. Sales of thermal renewable energy credits earn the school approximately \$6,500 per year on the basis of the consumption of 90 tons of wood pellets. The Lyme Fire Station, constructed in 2020-21, is also heated with a wood pellet boiler.

The replacement of the wood pellet boilers at the Town Highway Garage in 2021 with a propane boiler (rather than a new pellet boiler) illustrates the challenges facing Lyme in meeting its goal of relying on clean renewable energy sources. Uncertainty regarding the state rebate for new pellet boilers, higher costs of equipment and installation, difficulties in accurately forecasting long-term cost savings between propane and wood pellets, and perceived differences in ease of operation all contributed to the decision to install a propane boiler.

The evolving science of climate change suggests that our energy future should be based on technologies that enable the reduction of atmospheric carbon. Lyme residents should therefore be encouraged to use wood energy as efficiently as possible. Forests play an important part in Lyme's energy mix, while also helping to reduce atmospheric carbon. Lyme lies in the center of one of the most dense forest carbon areas in the Northeast. However, the Northeast, according to the Yale School of Forestry Wildlands and Woodlands report, is losing 65 acres of forest per day due to conversion to development and agriculture. Planning in Lyme should continue to encourage intact forests, which are sustainably harvested with regard to ecology, carbon, and local economic health, including utilization of low-grade cull wood for fuel. Utilizing culled wood from harvests for higher grade forest products offsets fossil fuel and provides Lyme forest owners with more income per tree, which helps ensure forests remain undeveloped. Looking

ahead, heat pumps – both air-source and ground-source – are expected to make inroads. Air-sourced heat pumps supplied with renewable power can result in relatively carbon-free heating.

Weatherization and passive solar design will also help to reduce heating loads, and these actions may be more financially available to more residents.

Space cooling and humidity reduction is becoming increasingly important in Lyme as temperatures rise. It is expected that energy loads for cooling will increase even as cooling technology becomes more efficient. It is not uncommon for new construction to include a built-in means for space cooling. Lyme residents benefitting from heat pumps for heating may tend to use their heat pumps for cooling as well, since they will potentially have a cooling source that didn't exist in their homes prior to adding heat pumps. Because heat pumps are quieter and more convenient than portable window units, it is expected that as heat pumps replace portable air conditioning for cooling, longer operating hours may offset efficiency gains.

Smart Growth

It is perhaps instructive to mention how specific energy issues fit into a comprehensive land use planning vision. In general, “smart growth” principles are understood to take the following into consideration when designing land use policies:

1. Mix land uses
2. Take advantage of compact design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, equitable, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

The statute in NH that speaks to “smart growth” is RSA 9-B, and it is defined as “the control of haphazard and unplanned development and the use of land which results over time, in the inflation of the amount of land used per unit of human development, and of the degree of dispersal between such land areas.”

"Smart growth" also means the development and use of land in such a manner that its physical, visual, or audible consequences are appropriate to the traditional and historic New Hampshire landscape.

Smart growth may include denser development of existing communities, encouragement of mixed uses in such communities, the protection of villages, and planning so as to create ease of movement within and among communities.

Smart growth preserves the integrity of open space in agricultural, forested, and undeveloped areas. The results of smart growth may include, but shall not be limited to:

- ▲ Vibrant commercial activity within cities and towns.
- ▲ Strong sense of community identity.
- ▲ Adherence to traditional settlement patterns when siting municipal and public buildings and services.
- ▲ Ample alternate transportation modes.
- ▲ Uncongested roads.
- ▲ Decreased water and air pollution.
- ▲ Clean aquifer recharge areas.
- ▲ Viable wildlife habitat.
- ▲ Attractive views of the landscape.
- ▲ Preservation of historic village centers.

Our Energy Future

As noted throughout this chapter, Lyme has made significant progress transitioning to clean, local, renewable energy in recent years, but much more can—and must—be done in order to avoid the worst projected impacts of climate change. Fortunately, implementing such measures often saves money in the long run, making it a win-win for the Town and its residents.

To that end, in 2020 the Town of Lyme voted to pursue a goal of 100% reliance on clean, renewable sources of electricity by 2030 and clean, renewable sources for all other energy needs, including for heating and transportation, by 2050. Lyme’s affirmative vote is part of a growing movement across the nation. As of December, 2020, more than 170 cities, ten counties, and eight states across the U.S. have goals to power their communities with 100% clean, renewable energy. In total, more than 100 million people now live in a community with an official 100% renewable electricity target. Lyme joins other NH towns—Hanover, Plainfield, Cornish, Concord and Keene—that have also adopted these goals.

The need to move in this direction is urgent. Between 1990 and 2013, global CO2 emissions rose by 60%^v; in 1988, fossil fuels provided 79% of world’s energy, now, despite advances in solar and wind, that percentage has risen to 81%. Every decade since the 1960s has been clearly warmer than the one that preceded it, and 2015-2019 was the warmest 5-year period in recorded history.

The 4th National Climate Assessment Report, completed in 2018 and peer reviewed, with 11,000 scientists endorsing its conclusion, states that we are facing a *climate emergency* – one that has arrived quicker, is accelerating faster, and with more severe consequences than had been

predicted – including severe storms, wildfires, rising sea levels, disappearance of coral reefs, changing weather patterns, and more ticks in Lyme NH. Scientists are now predicting that unless we make major reductions in the amount of greenhouse gasses emitted, primarily CO₂ (carbon dioxide) and CH₄ (methane), we will pass the point of being able to minimize the effects on the environment from climate change. The goal, scientists state, must be to cut carbon emissions in half by 2030 and then to achieve NET ZERO global CO₂ emissions by 2050. Their conclusion – “future risks from climate change depend primarily on decisions made today.”

In addition to the critical need to minimize the most severe effects of climate change, shifting away from reliance on fossil fuels makes economic sense. Fossil fuels are finite in supply, domestic crude oil production peaked in 2007, and even as advances in technology make it possible to extract the remaining supplies (think fracking), the cost of that extraction, both economically and environmentally, will continue to increase. Renewable energy sources have the potential for increasing the resilience of Lyme’s energy infrastructure, saving dollars spent on energy, and keeping those dollars supporting our local economy.

There is much work to be done by all parties in Lyme – e.g., Town officials and staff, volunteer committees, and residents – to progress towards this ambitious goal. The Planning Board supports these recommendations offered by The Energy Committee.

Recommendations

1. The Town should lead by example through its commitment to sustainability and energy-savings in the operation of its public buildings, exterior lighting and vehicle fleet management. When town buildings undergo significant renovations, efforts should be made to complete those renovations with energy-conserving products and techniques, including the installation or use of renewable energy sources. Renewable energies should be the default, not the alternative, even while seeking competitive bids from carbon sources. A leadership role at the town level can encourage further adoption among the public.
2. The Planning Board should take this chapter as a mandate to make zoning recommendations that are more permissive for the use of renewable energy sources.
3. The Select Board, in consultation with the Energy Committee should monitor the long-term Town Capital Improvement Plan to identify upcoming projects, e.g. vehicle replacement/addition, building renovations and EV charging stations, that lend themselves to clean renewables and to ensure that the decision-making process, as well as any needed outside funding, is in place to favor renewable energies.
4. The Town should encourage EV adoption, purchasing EVs when replacing the town fleet, applying for state funds to purchase an EV school bus and explore the possibility of using that same electric bus to create a local commuter route down Rte. 10 to Hanover and Lebanon, installing local charging stations, etc. The Town should support public transit to

reinstate regular and convenient bus service to Lyme, if economically feasible.

5. The Town should facilitate the siting of “group net metered” solar projects, where a larger, often ground-mounted, solar array benefits various residents who either co-own it or subscribe to its output through New Hampshire’s group net metering program.
6. The Town should retain the solar property tax exemption.
7. The Town should establish, with Select Board approval, a Lyme Electric Aggregation Committee (LEAC) to explore ways to take advantage of NH’s Community Power Law by either joining a regional Community Power Program or developing its own.
8. The Town should add PV arrays to the new fire house and the library, both of which have newly installed south-facing roofs, and should look for creative ways to finance PV on other Town-owned buildings or on Town-owned land.
9. The Town should consider elimination of all street lights that are not essential to safety.
10. The Town’s land use planning should promote energy efficiency, long-term sustainability, environmental impact, and the use of “smart growth” principles, e.g. the energy-saving possibilities of cluster housing, walkable neighborhoods, best practices of forest management, preservation of wildlife corridors, etc.
11. Forests should remain intact as much as possible. Forests reduce the need for energy hungry cooling while reducing atmospheric carbon, and while providing an energy source that Lyme residents rely upon. The Mountain and Forest District should continue to require a minimum lot size of 50 acres to encourage timberland investment and economies of scale for timber harvest.
12. Opportunities to safely connect key parts of town using bike paths or trails should be encouraged.
13. The Lyme Energy Committee and Select Board should stay abreast of local and federal opportunities to promote renewable energy.
14. This Energy Chapter of the Master Plan should be updated every 3-5 years.

ⁱ <https://www.eesi.org/electrification/be>

ⁱⁱ <https://www.eia.gov/state/analysis.php?sid=NH>

ⁱⁱⁱ <https://www.lymenh.gov/energy-committee>. Go to the “Electric vehicle resource guide” in the green sidebar on the left.

^{iv} <https://www.nhes.nh.gov/elmi/products/documents/ec-0519.pdf>

^v <https://blogs.worldbank.org/opendata/chart-global-co2-emissions-rose-60-between-1990-and-2013>

Chapter 12 -Hazard Mitigation

The Town of Lyme is committed to protecting its residents from natural disasters to the greatest extent possible. While the Town cannot prevent weather related events, it can try to minimize their impacts on residents. One of the ways to minimize impacts is to enact land use regulations that limit development in areas with identifiable risk

FEMA requires Towns to have a Hazard Mitigation Plan in order for the Town to receive certain grant monies and to be able to participate in the National Flood Insurance Program. As part of the Hazard Mitigation Plan FEMA recommends that the Town include a Hazard Mitigation chapter in the Master Plan.

Flooding and Storm Water:

According to the Town of Lyme's Hazard Mitigation Plan, the greatest potential for damage is from flooding and storm water runoff. Wetlands and the surrounding areas act as natural buffers by collecting storm water and then slowly releasing it over time. The Town should continue to protect wetlands and the buffers around them.

Shore lands along streams, rivers and ponds can become inundated with storm water runoff. Development within these areas can be damaged by the storm water or restrict the flow causing greater damage elsewhere. Limiting development in these areas will prevent potential property damage and keep these passages open for increased water flow events.

The Town of Lyme has several areas that have been defined by FEMA as having a higher risk of flooding during a 100 year flood event. Due to the risk of inundation, these areas should not be developed. In the areas where development has already occurred, any major renovation or change to the structures should require that steps be taken to flood proof the structure.

Clearing and building on steep slopes can lead to increased velocity of storm water runoff and erosion that can cause the blockage of water ways from silt and debris. Construction on steep slopes should be prohibited to the greatest extent possible.

New driveways should be constructed in a manner that will reduce the possibility of storm water runoff damaging the roads they connect to. Where necessary, the home owner should be required to correctly install properly sized culverts within the curb-cut to ensure proper flow within the road side ditches. The road end of driveways should have a proper grade to divert water away from the road.

The Town should ensure that the Town's storm water drainage system is in good condition and can handle increased storm water flow as has been seen in recent years.

Fire:

Protecting structures with long, difficult access ways from wild fires is challenging and dangerous for firefighters. The Town should restrict the distance at which a structure is located from the road. Where long driveways are required, accommodations should be made to the design that will allow Fire apparatus to pass each other. New major subdivisions should provide onsite water for firefighting in the form of a fire pond with a dry hydrant or in ground cisterns. New building heights should be limited to those which can be reached with the equipment available to the Lyme Fire Department.

Building setbacks within the village and other high density areas should be maintained to limit the possibility of fire spreading between buildings and to allow the access of fire fighters and their equipment.

Agricultural Soils:

With the unknowns of Global Climate Change, the need to maximally cultivate Lyme's agricultural soils may well increase. These soils should be protected for the benefit of both current and future generations of Lyme residents.

At Risk Roads:

Several of Lyme's roads are at risk for damage from adjacent water ways. The Town should work with Federal and State agencies to try to minimize damage by reducing dramatic changes in water levels, repair existing damaged areas and proactively prevent new damage.

Recommendations:

- The Town Highway Department should undertake a Culvert Inventory to ensure that the Town's culvert system can handle future large storm water events.
- The Town should continue protecting its residents and infrastructure through zoning by limiting development within areas that pose identifiable risks.
- The Planning Board should review current ordinances and regulations with the Police Chief, Fire Chief, the Emergency Management Director and other First Responders to ensure that the Ordinances and Regulations meet the requirements for protecting Lyme's residents to the greatest extent possible.

Appendix A. -Community Attitude Survey

Chapter 1 is the “Vision Statement” of the Master Plan. It combines the most commonly held community values and reflects the general consensus of the people of Lyme. It is based on the 2006 Community Attitude Survey, the results of neighborhood meetings held in 2007 as well as input from Town boards and departments and comments of residents.

Community Attitude Survey

1315 copies of the Community Attitude Survey were mailed to Lyme residents. 864 copies were returned, a return rate of 66%. This is a much higher return rate than is ordinarily achieved for community attitude surveys. The results of the survey are tabulated below. The survey itself is set forth in Appendix A page A-21 to page A-23

In the following tabulation many of the responses do not total 100%. This is because respondents did not necessarily complete all questions or portions of the survey. Likewise, a number of results total more than 100 % because the survey called for multiple answers. For example Question 1 of the survey asked the respondents to identify Lyme’s three greatest assets.

Respondents have raised similar issues in different parts of the survey. Wherever possible, these responses have been consolidated

Question 1: What are Lyme's three greatest assets?

Scenic beauty	49%
Sense of community	43%
Quality schools	33%
Small population	32%
Personal/family safety	30%
Farms and forests	27%
Outdoor recreation opportunities	24%
Traditional village areas	22%
Community events	6%
Quality local government	3%
Cultural opportunities	2%
Employment opportunities	1%

Additional assets cited by up to five respondents:

Church(es)
Close to Hanover/Dartmouth
Free to live as you want
Post Pond (& Fireworks)
Rural atmosphere (also brooks, rivers, ponds)
Close to good medical care
Dark skies
Heritage
Library & Post Office
Ease of getting to all offices, stores & P.O.
CT River frontage
Volunteer emergency services
Rich history
All except employment opportunities
Educated population; more democracy
People
Taxpayers
Few tourists!
Life-long residents
Elderly people
Nichol's Hardware
History
Privacy of personal home

Question 2: What are the most important issues facing Lyme?

Maintain Lyme's rural character	56%
Property taxes	54%
Development/Growth	52%
Housing for people of all incomes	42%
Internet access	18%
Schools	18%
Condition of roads and bridges	17%
Cell phone coverage	16%
Police/fire protection	4 %
Pollution	3 %

Additional issues cited by one or two respondents:

Public transportation	Senior Housing & Senior Center
Vibrancy of Village; Community Center	Affordable housing
Bike/jogging lanes on Rt. 10	Community involvement
Discrimination towards white people	Diversity of income
Help local people stay in Lyme; keep things simple	Lack of people interested in being selectmen
Maintain large blocks of forest lands	Municipal Offices & adequate police facilities
No farms left!!	Noise
Not a single strata community	Post Pond water level
Smart growth	Too much regulation
Traffic	

Question 3: The rate of growth in Lyme in the past ten years has been?

About right	48%
Too rapid	19%
Too slow	17%
No opinion	10%
Did not respond	5%

Question 4: Rate the quality of services in Lyme

Department	Excellent	Adequate	Inadequate	Poor	Don't know/No Opinion	Did not Respond
Library	44 %	39 %	4 %	1%	9 %	4 %
Conservation Areas	40 %	41%	3 %	1%	10 %	6 %
Town Govt/Clerk's office	31 %	48 %	8 %	3 %	7 %	4 %
Post Pond Recreation Area	34 %	42%	6%	1%	11%	5 %
Road Maintenance	26 %	50 %	12 %	5 %	4 %	4 %
Recycling	30 %	45 %	10 %	5%	6 %	4 %
Police	23 %	51 %	8 %	4%	10 %	4 %
Fire Department	37 %	36 %	2 %	-	20 %	4 %
Schools	37 %	34 %	4 %	1 %	21 %	4 %
Ambulance/Fast squad	42 %	24 %	2 %	-	26 %	6 %
Trash disposal	17 %	43 %	17 %	10 %	8 %	5 %
Childcare	9 %	20 %	6 %	2 %	56 %	7 %
Elderly services	4 %	18 %	12 %	6 %	55 %	6 %

Additional services cited by one or two respondents as being inadequate or poor.

Assistance to Elderly/Senior Housing
Childcare for 11-14yr
Green garbage bags
Hazardous waste
Internet
Need high-speed internet
Need town manager!
No appropriate town hall
Politics of town
Public transportation
Zoning

Question 5(a): Lyme should undertake the following major capital projects in the next ten years:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Did not Respond
New Town Office	21 %	32%	21 %	12 %	8 %	6 %
Library addition/expansion	8 %	23 %	28 %	19 %	14 %	9 %
New police station	7 %	22 %	30 %	21%	14 %	6 %
New transfer station	7 %	15 %	29 %	26 %	15 %	8 %
New fire station	6 %	16 %	34 %	24%	12 %	8 %
New playing fields	6 %	15 %	37 %	22%	13 %	8 %

Question 5(b): Which of the major capital projects should be the highest priorities (Circle two from Question 5(a))?

Note: Most respondents to question 5(a) did not respond to this question by including their selection even where they had checked “Strongly Agree or “Agree” with respect to a particular project.

	Project should be undertaken in next 10 years
New town office	32 %
Library addition/Expansion	14 %
New police station	12 %
New transfer station	11 %
New fire station	9 %
New Playing fields	8 %

Note: the Community Attitude Survey was taken before the new town office was built

Question 6(a): New residential growth in Lyme should occur:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Did not Respond
More housing development should not be encouraged	22 %	20 %	13 %	19 %	12 %	13%
In or near existing villages	20 %	32 %	16 %	7%	7 %	17 %
Along existing paved roads	13 %	39 %	17 %	7 %	7 %	17 %
Clustered in new neighborhoods or villages	12 %	25 %	18 %	13 %	14 %	17%
In the eastern part of Town	6 %	18 %	38 %	8 %	8 %	21 %
Along new subdivision roads	5 %	21 %	21%	17 %	15 %	21%
In the western part of Town	4 %	15 %	38 %	11 %	12 %	21 %

Question 6(b): Lyme should do more to encourage the development of housing for:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Did not Respond
Moderate income people	19 %	40 %	18 %	5 %	7 %	11 %
Elderly people	20 %	34 %	22 %	7 %	7 %	11 %
Single families	18 %	33 %	23 %	6 %	6 %	13 %
Low income people	17 %	32 %	21 %	11 %	10 %	11 %
Renters	6 %	18 %	30 %	19 %	11 %	16 %
High income people	3 %	10 %	24 %	23 %	26 %	15 %

Additional options cited by one to three respondents:

Elder co-housing
 Lyme natives
 Maintain rural atmosphere/ farms
 Disabled
 Families with school-age children
 Habitat for Humanity
 Multiple family groups; clusters
 Town employees including teachers

Question 6(c): Lyme should encourage the development of housing in:

	Yes	No	Don't know	Did not Respond
Conversion of existing large buildings	53 %	20 %	16 %	10 %
Single family homes on small lots	49 %	28 %	13 %	9 %
Single family homes on large lots	40 %	36 %	14 %	11 %
New condominiums or housing co-ops	22 %	50 %	16 %	12 %
New rental apartment buildings	14 %	59 %	15%	12 %
New subdivisions should be required to provide affordable housing	14%	59 %	13 %	12 %

Question 7: Should Lyme's zoning allow more areas for higher density housing (one or more residences per acre)?

Yes	No	Did not respond
42 %	48 %	10 %

The questionnaire also asked where higher density housing should be allowed. Ten percent of the respondents identified the Lyme Common and Lyme Center Villages as areas for higher density housing. No other area was identified by more than five respondents.

Question 8: Lyme should do more to encourage commercial development for:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Did not Respond
Restaurants	17 %	40 %	14 %	13 %	9 %	8 %
Professional offices	13 %	37 %	15 %	11 %	10 %	13 %
Small scale high technology	12 %	38 %	19 %	13 %	10 %	9 %
Expansion of existing businesses	10 %	36 %	25 %	12 %	9 %	9 %
New retail	9 %	31 %	19 %	19 %	12 %	10 %
Dentists hairstylists etc.	8 %	31 %	22 %	16 %	11 %	11 %
Commercial recreational facilities	7 %	22 %	24 %	21 %	16%	10 %
Inns and Hotels	7 %	19 %	22 %	27 %	15 %	11 %

Additional developments cited by one to five respondents:

- Arts/Culture
- Hardware store
- Health & fitness center
- NASCAR Race track!

Question 9: Should Lyme's zoning allow more areas for new commercial development?

Yes	No	Did not Respond
33 %	53 %	14%

If Yes, where? / Number of respondents

Along Route 10	59
Lyme Common	39

South of Town	24
Anywhere	7
Lyme Center	5
West	4
North of Town	2
Rural or outlying Areas	2

Question 10: Where do you work?

Hanover/Lebanon	31 %
Retired/Not Employed	21 %
Lyme -at home	19 %
Lyme -in town	10 %
White River Junction	3 %
Randolph/Royalton	1 %
St. Johnsbury area	1 %
Plymouth area	1 %
Other	9 %
Did Not Respond:	6 %

Question 11: Where do you shop?

	Most	Some	Minor	None	Did not Respond
Lyme	3 %	34 %	38 %	8 %	17 %
On-line	8 %	34 %	18 %	17 %	23 %
Hanover/Norwich	34 %	33 %	12 %	8 %	13 %
Bradford/Fairlee	2 %	25 %	33 %	21 %	19 %
Thetford	4 %	22%	30 %	24 %	20 %
West Lebanon / Lebanon	49 %	34 %	7 %	1 %	9 %
White River Junction	2 %	11 %	30 %	34 %	23 %

Additional shopping locales cited by one to two respondents:

Concord/Burlington	Boston
Catalogs/Mail order	Claremont
Littleton, Woodsville, St. Johnsbury	New York
Out-of-State/Out of Country	Orford
Southern NH	Keene
Plymouth	North Conway

Question 12: Should Lyme encourage or provide facilities for:

	Yes	No	Did not Respond
Senior Center	64 %	26 %	10 %
Art studios/classes	48 %	38 %	14 %
Performing arts	44 %	42 %	13 %

Questions 13(a) and (b):

**What types of recreation do you enjoy in Lyme?
In which of these do you participate most often?**

	At any time	Most often participated
Walking/Running	75 %	52 %
Hiking	62 %	43 %
Cross-country skiing	48 %	26 %
Swimming	47 %	20 %
Road biking	36 %	17 %
Fishing	25 %	9 %
Skating	24 %	3 %
Mountain biking	22 %	8 %
Hunting	15 %	8 %
Organized team sports	11 %	3 %
Snowmobiling	9 %	3 %
Horseback riding	9 %	3 %

Additional types of recreation cited by respondents:

Downhill skiing/snowboarding	Snowshoeing
Tennis	Gardening
Boating	Canoeing/Kayaking
Birding/Wildlife watching	Sculling/Rowing

Question 13(c): Have you encountered posting on land that you have used for recreation?

Yes	No	Don't know	Did not respond
31 %	48 %	11 %	9 %

Question 13(d): Lyme should add or improve the following recreational opportunities:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Did not Respond
Boat access to river	12 %	36 %	23 %	13 %	7 %	9 %
Hiking trails	12 %	36 %	24 %	12 %	5 %	11 %
Cross country skiing trails	10 %	34 %	27 %	13 %	5 %	11%
Indoor gym for fitness equipment	8 %	22 %	24 %	22 %	13 %	11 %
Picnic areas	8 %	32 %	27 %	15 %	6 %	12 %
Skating	6 %	19 %	35 %	16 %	6 %	18 %
Swimming pool	5 %	11 %	25 %	29 %	19 %	11 %
Horseback riding trails	4 %	18 %	39 %	17 %	9 %	13 %
Snowmobile trails	4 %	12 %	32 %	22 %	17 %	13 %
Tennis	4 %	16 %	36 %	24 %	8 %	12 %
Indoor gym for team sports	3 %	12 %	32 %	26 %	14 %	12 %
Basketball	3 %	13 %	40 %	22 %	8 %	13 %

Additional options cited by one to four respondents:

Bike paths	Bike trails
Lap lane at Post Pond	Golf course
Public access to River for trails and boating	Support Skiway
Community playground	Card parties enjoyed by older residents
Paddle courts	Walking trails/Nature areas/Picnic spots
Parks	Toddler/baby swing at school
Shooting range	Open School Gym to public
Organized adult opportunities , team and other	ATV Trail

Question 14: Lyme should take steps to protect:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Did not Respond
Natural areas	51 %	32 %	7 %	2 %	1 %	8 %
Historic sites and structures	50 %	34 %	8 %	2 %	1 %	6 %
Farmland	48 %	32 %	9 %	4 %	1 %	6 %
Shores of streams and ponds	46 %	35 %	7 %	3 %	1 %	8 %
Wildlife habitat	46 %	35%	8 %	3 %	1 %	7 %
Scenic views and vistas	43%	33 %	11 %	4 %	2 %	8 %
Forested hillsides and ridgelines	42 %	30 %	12 %	5 %	3 %	8 %
Access to public waters	42 %	36 %	11 %	3 %	2 %	7 %
Trails	41%	39 %	9 %	2 %	1 %	8 %

Note that 90% or more of those respondents who had an opinion on the protection of the listed assets agreed or strongly agreed that the assets should be protected. The percentages for each of the assets are shown in the following table.

Asset	Strongly agree or agree
Natural areas	98%
Historic sites and structures	98%
Farmland	94%
Shores of streams and ponds	95%
Wildlife habitat	95%
Scenic views and vistas	94%
Forested hillsides and ridgelines	90%
Access to public waters	95%
Trails	96%

The question also asked respondents to identify other assets the Town should protect and the following additional assets were cited by one or two respondents:

Air quality (require 4 stroke snow machines and ATVs)	Local/older people who can't afford to live in Lyme
Itself from over-population	Landowners
Large forest tracts	Existing businesses
Locals	Night sky darkness
Old Houses & buildings	Operating farms
Post Pond	Property Rights
River Banks	Rural character
Small town sense of community	Walkers/joggers
Watershed	Wildlife corridors
Winding, dirt roads	

Questions 15(a) & (b):

(a) I would support the protection of the lands I identified in Question 14 even if it meant an increase in my tax bill of:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Did not Respond
A total increase of \$10	36 %	20 %	6 %	4 %	11 %	24 %
A total increase of \$50	29 %	23 %	6 %	10 %	14 %	18 %
A total increase of more than \$50	20 %	16 %	11 %	15 %	20 %	18 %

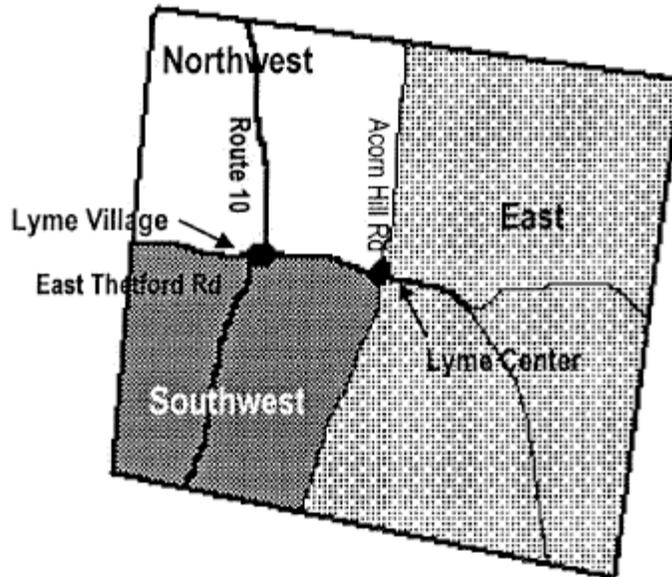
(b) I would support the protection of the lands I identified in Question 14 by making a voluntary contribution to the Town's Conservation Fund:

	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree	Did not Respond
\$10 to \$50 annually	31 %	22 %	10 %	6 %	9 %	24 %
\$50 to \$100 annually	18 %	15 %	14 %	13 %	13 %	28 %
\$100 or more annually	15 %	9 %	15 %	18 %	17 %	26 %

Question 16: In Lyme, do you?

Own your home	83 %
Own undeveloped land	20 %
Rent your home	4 %
Rent an apartment	3 %
Own a condominium	2 %
Own or rent a seasonal home/camp	2 %
Lease land	1 %

Question 17: In what part of Lyme do you live by reference to the map below?



Northwest	34 %
Southwest	20 %
East	20 %
Lyme Village	11 %
Lyme Center Village	7 %
Did not Respond	6 %
I do not live in Lyme	2 %

Note that the responses to this question are flawed by the way the map was drawn. The division line between the “Northwest” and “Southwest” sections of Lyme as depicted on the map is the East Thetford Road/Dorchester Road corridor. The western boundary of the “East” section of Lyme is shown as the Orfordville/Highbridge/Acorn Hill Road/ Baker Hill Road corridor.

Respondents who lived opposite one another on these roads would have reported that they lived in different sections of Town.

Question 18: How long have you lived in Lyme?

Average: 20 years; Shortest: less than one year; Longest: 100 years

0 -5 years	23 %
5 -10 years	15 %
10 -20 years	23 %
20 -40 years	26 %
more than 40 years	13 %

Question 19(a): Do you have internet access?

Dial-up	High speed	No Access	Don't know	Did not Respond
56 %	19 %	15 %	2 %	9 %

(b): Do you want high-speed Internet access?

Yes	No
56 %	16 %

(c): How much would you be willing to pay for high-speed Internet access?

The responses ranged from \$2 to \$200 per month.

Question 20: How old are you?

8% of those who completed the survey did not respond to this question. The following tabulation reflects the answers of those who did respond.

20 -34	6 %
35 -54	40 %
55 -64	28 %
65+	27 %
Did not respond	8 %

Question 21: How many people in your household?

1	11 %
2	47 %
3	10 %
4	17 %
5	7 %
6	1 %

Greater than 6	1 %
----------------	-----

Question 22: What is your educational level?

Elementary school	1 %
Some high school	1 %
High school degree/GED	11 %
Some college	8 %
College degree	28 %
Post graduate	37 %
Did not respond	14 %

Question 23: What sources of heating fuel do you use?

	Primary	Secondary
Oil/kerosene	58 %	7 %
Propane	21 %	12 %
Traditional wood	12 %	28 %
Electricity	2 %	6 %
Wood pellet	2 %	3 %
Solar		1 %
Coal or coke		< 1 %

Question 24 (a): Do you carpool?

Yes	No	Did not respond
12 %	78 %	10 %

(b): Should the Town encourage more carpooling or public transit?

Yes	No	Did not respond
64 %	19 %	17%

(c): If the Town should encourage more carpooling, how should it do so?

- Additional parking created at Route 10 & Goose Pond Road.
- Advance Transit
- Bike Storage area in town? Commute by bike between work and Lyme
- Free garbage bag roll per month in exchange for carpool signings
- High School Bus

Need more for the elderly who can't afford a car.
 Park & Ride - Provide larger lot
 Scheduled van, not a large bus
 Sidewalks and crosswalks in downtown; bike lanes
 Tax break/Gas Discount
 Taxi
 The Town should certify drivers who would be willing to pick up hitchhikers and residents (youth?) who hitch hike. Convenient pickup and drop off sites would be identified.
 Train
 Use Listserv/Web Page/Internet/published Directory/Other Publicity
 Volunteers
 Work at home

Question 25: Do you live on a dirt road?

Yes	No	Did not respond
49 %	46 %	6 %

Neighborhood Meetings

The Community Attitude Survey provides a comprehensive overview of community values, hopes and concerns. Additional input from Town residents was provided by four neighborhood meetings held in the summer of 2007. The following summarizes the results of the meetings.

Neighborhood Meeting Themes:

Villages:

Villages are the "heart of the community". The Lyme Common and Lyme Center villages were frequently cited as being important aspects of the Town's sense of community.

Things residents would like to change include:

- Develop a vision for the villages
- Create more opportunities for social interaction
- Increase the vibrancy of the villages
- Reduce traffic speeds
- Encourage more businesses and services (e.g. restaurants)

- Create a safer pedestrian environment (e.g. crosswalks, wider shoulders, sidewalks)
- Encourage housing above commercial buildings
- Increase the size of the village zoning districts and provide for higher development densities
- Concentrate commercial development in the villages

Natural and Cultural Resources:

There is a strong conservation ethic in Lyme. Various natural and cultural features within Lyme including significant water resources, like the Connecticut River and Post, Pout, and Trout Ponds, wildlife, and old buildings were often identified as among the most important features in Town. Open spaces, farms, forests, and mountains were also recognized as important to sense of community. Recreational opportunities were frequently cited, including the Dartmouth Skiway and the Appalachian Trail.

Things residents would like to change include:

- Start using transferable development rights to help preserve natural areas
- Develop a bike path between Post Pond and Lyme Common Villages
- Preserve historic structures
- Preserve more open space

Transportation:

The ability for someone to walk to different locations within Town and the appearance of rural dirt roads were cited as important community features. Some problem areas were also identified, such as the Route 10 - East Thetford Road intersection, safety on dirt roads, and general pedestrian safety.

Things residents would like to change include:

- Develop more paths and sidewalks
- Enhance pedestrian safety
- Encourage Advance Transit to provide service to Lyme
- Make dirt roads safer without destroying their rural character (e.g. cutting vegetation back to improve sight distances)
- Develop pedestrian and bicycle access to Post Pond

- Reduce road width in village areas
- Create pedestrian and bicycle access from Lyme Common Village to Lyme Center Village
- Improve the NH Route 10 - East Thetford Road intersection

Community Activities/Small Town Atmosphere:

"Small town atmosphere" was identified as one of the most significant features of Lyme that contributes to sense of community. Examples, such as the Lyme List, mutual trust among neighbors, the honor system for purchasing goods and services, community activities, and volunteer-led government were frequently cited as among Lyme's special small town attributes. Lyme "works well because it is small".

Things residents would like to see in the future:

- Keep Lyme from becoming a "gated" community
- Create a farmers market in Lyme Common Village
- Establish development design standards
- Create more athletic fields

Cultural Diversity and Affordable Housing:

There is an openness and respect for diversity in Lyme. A diverse population was noted as an important feature of the community- a feature that is in danger as the cost of living in Lyme increases. The Town's social and economic diversity is closely linked to housing costs and opportunities for employment within Lyme.

Things residents would like to change include:

- Provide for more affordable housing
- Create more employment opportunities
- Enhance interaction among "newcomers" and "natives"
- Stop the trend of Lyme becoming a "gated community"
- Provide for housing for the elderly in-town

What does "Sense of Community" mean to you?

6/26/07 Neighborhood Meeting:

- People look out for each other, noticing major events or changes in each other's lives, and helping each other in times of difficulty
- Living in a town where you see people you know every day and every time you stop somewhere
- Caring, concern. Events involving residents. Planning to protect each other.
- Knowing my neighbors well enough to leave my sneakers in their garden when I put on my bike shoes
- Having a progressive supper to celebrate winter with my neighbors
- Knowing people at the country store, flea market, dump
- Knowing I will be called on to help my friends and neighbors and knowing I can call on them for help
- Attending little town meeting and town meeting
- Having a place to meet neighbors and get to know them. The Dump. A restaurant that is family-oriented and not too expensive
- Self-governance – small population - service to each other - town/school events

7/12/07 Neighborhood Meeting

- Knowing your neighbors
- Clusters of people living together surrounded by beautiful open spaces
- Sense of community is where you know everyone else. Lyme doesn't fit that image anymore.
- Space in the community for all socio-economic groups. Not just the one we are becoming.
- Neighbors caring about each other and ready to help at any time
- People taking care of people
- We came to Lyme in 1966; the older generations were here - not now; we are losing the intergenerational connection
- Where people know each other and share common events
- Being aware of your neighbors both near and far from where you live

- Diversity of inhabitants, income levels, etc.; people who interact with and care about one other
- People connected through social networking; mutual support
- Knowing people and people recognizing you - throughout the Town
- Storm of April 2007 is the best sense of community
- If you live in Lyme, you're "one of us."

7/18/07 Neighborhood Meeting:

- The knowledge that someone in Lyme will be there to help when you need it!
- The idea that you share concerns with others, even if you disagree as to solutions
- That people regard the community as "theirs" and take part in its affairs
- Keeping town offices in town.
- People sharing and helping one another; shared values but honor diversity; able to meet needs for local foods, some social and cultural activity within my town - not just houses
- Familiarity with those who live close by
- Pedestrian/bicycle safety - wide shoulders - more crosswalks
- Traffic in Town - Rt. 10/E. Thetford intersection - people speed on E. Thetford from Rt. 10 North. Traffic circle? But no traffic light.
- We need an identity - something we point to with pride; a village atmosphere with useful, but low-key businesses.
- A change in our police department. We need a new chief!!!! Who is knowledgeable in what our traffic has become.

Community Attitude Survey

1. Circle below what you think are Lyme's three greatest assets.

- Employment opportunities
- Personal/family safety
- Quality local government
- Outdoor recreation opportunities
- Traditional village areas
- Community events
- Other _____
- Quality schools
- Sense of community
- Small population
- Scenic beauty
- Farms and forests
- Cultural opportunities

2. Circle the three most important issues facing the Town of Lyme in the next ten years.

- Condition of roads and bridges
- Development/Growth
- Housing for people of all incomes
- Maintain Lyme's rural character
- Internet access
- Other _____
- Schools
- Property taxes
- Pollution
- Police/Fire protection
- Cell phone coverage

3. The rate of growth in Lyme in the last ten years has been? (circle one)

- Too slow
- About right
- Too rapid
- No opinion

4. (a) Please rate the quality of services in Lyme

- Excellent = 5
- Adequate = 4
- Inadequate = 3
- Poor = 2
- Don't Know/no opinion = 0

	5	4	3	2	0
Ambulance/Fast squad					
Childcare					
Conservation Areas (Town Forest, Trout Pond area, etc.)					
Elderly services					
Fire Department					
Library					
Police					
Post Pond Recreation Area					
Recycling					
Road Maintenance					
Schools					
Town Gov't/Clerk's office					
Trash Disposal					
Other (specify)					

(b) If any of the above is not adequate, please explain:

5. (a) In the next ten years Lyme should undertake the following major capital projects:

- Strongly Agree = SA
- Agree = A
- No Opinion = O
- Disagree = D
- Strongly Disagree = SD

	SA	A	O	D	SD
Library Addition/Expansion					
New Fire Station					
New Police Station					
New Town Office					
New Playing Fields					
New Transfer Station					

Are there others? _____

(b) Which should be the highest priorities? (circle two above)

6. (a) New residential growth in Lyme should occur:

	SA	A	O	D	SD
In or near existing villages					
Along existing paved roads					
Along new subdivision roads					
In the western part of town					
In the eastern part of town					
Clustered in new neighborhoods or villages					
More housing development should not be encouraged					

(b) Lyme should do more to encourage the development of housing for:

	SA	A	O	D	SD
Single families					
Elderly people					
Renters					
Low income people					
Moderate income people					
High income people					
Other (specify)					

(c) Lyme should encourage the development of housing in:

	Yes	No	Don't Know
New rental apartment buildings			
Conversion of existing large buildings			
New condominiums or housing co-ops			
Single family homes on small lots			
Single family homes on large lots			
New subdivisions should be required to provide affordable housing			

Thank you for completing this survey. Your opinion is valuable and needs to be counted. All responses will be anonymous.

7. Should Lyme's zoning allow more areas for higher density housing (one or more residences per acre?)

Yes _____ No _____

If yes, where? _____

8. Lyme should do more to encourage commercial development for:

Strongly Agree = SA Agree = A No Opinion = O
Disagree = D Strongly Disagree = SD

	SA	A	O	D	SD
Professional offices					
Expansion of existing businesses					
New retail					
Dentists, Hairstylists etc.					
Inns and Hotels					
Restaurants					
Small scale high technology					
Commercial recreation facilities					
Other (specify)					

9. Should Lyme's zoning allow more areas for new commercial development?

Yes _____ No _____

If yes, where? _____

10. Where do you work? (circle one)

- Lyme – at home Lyme – in town
- Hanover/Lebanon White River Junction area
- Plymouth area Randolph/Royalton area
- St Johnsbury area Retired/Not employed
- Other _____

11. Where do you shop?

	Most	Some	Minor	None
West Lebanon/Lebanon				
Lyme				
Hanover/Norwich				
Thetford				
White River Junction				
Bradford/Fairlee				
On-line				
Other (specify) _____				

12. Should Lyme encourage or provide facilities for:

- Performing arts Yes _____ No _____
- Art studios/classes Yes _____ No _____
- Senior Center Yes _____ No _____

Thank you for completing this survey. Your opinion is valuable and needs to be counted. All responses will be anonymous.

13. (a) What types of recreation do you enjoy in Lyme? (Circle all that apply)

- Hiking Mountain Biking Walking/Running
- Fishing Road Biking Horseback Riding
- Skating Snowmobiling Organized team sports
- Hunting Swimming Cross-county Skiing
- Other _____

(b) In which three do you participate most often?

(c) Have you encountered posting on land that you have used for recreation?

Yes _____ No _____ Don't Know _____

(d) Lyme should add or improve the following recreational opportunities:

Strongly Agree = SA Agree = A No Opinion = O
Disagree = D Strongly Disagree = SD

	SA	A	O	D	SD
Skating					
Indoor Gym for team sports					
Indoor Gym for fitness equipment					
Tennis					
Basketball					
Swimming pool					
Picnic Areas					
Boat Access to river					
Hiking trails					
Cross Country Skiing Trails					
Snowmobile Trails					
Horseback Riding Trails					
Other (specify) _____					

14. Lyme should take steps to protect:

	SA	A	O	D	SD
Farmland					
Historic Sites and Structures					
Natural areas					
Access to public waters					
Forested hillsides and ridgelines					
Scenic views and vistas					
Shores of streams and ponds					
Trails					
Wildlife habitat					
Other (specify) _____					

15. (a) I would support the protection of the lands I identified in question 14 even if it meant an increase in my tax bill:

Strongly Agree = SA Agree = A No Opinion = O
Disagree = D Strongly Disagree = SD

	SA	A	O	D	SD
A total increase of \$10					
A total increase of \$50					
A total increase of more than \$50					

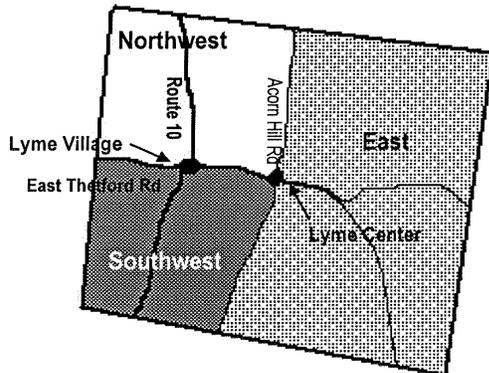
(b) I would support the protection of the lands I identified in question 14 by making a voluntary contribution to the town's Conservation Fund:

	SA	A	O	D	SD
\$10 to \$50 annually					
\$50 to \$100 annually					
\$100 or more annually					

16. In Lyme, do you? (Circle one or more as appropriate)

- Own your home Own a condominium
- Own undeveloped land Rent your home
- Rent an apartment Lease land
- Own or rent a seasonal home/camp

17. In what part of Lyme do you live? (refer to map below)



- ___ Lyme Village
- ___ Lyme Center village
- ___ Northwest
- ___ Southwest
- ___ East
- ___ I do not live in Lyme

Thank you for completing this survey. Your opinion is valuable and needs to be counted. All responses will be anonymous.

18. How long have you lived in Lyme?

___ years

19. (a) Do you have internet access? (circle one)

- Yes, Dial up Yes, High speed
- No internet access Don't know

(b) If you do not have high speed access, would you like it? Yes ___ No ___

(c) How much would you be willing to pay per month for high speed internet access? \$ _____

20. Your age?

Under 20 ___ 20-34 ___ 35-54 ___ 55-64 ___ 65+ ___

21. How many people in your household?

Male ___ Female ___

22. What category best describes your educational level? (Circle one)

- Elementary school Some college
- Some high school College degree
- High school degree/GED Post graduate

23. What sources of heating fuel do you use?

	Primary	Secondary
Coal or Coke		
Electricity		
Oil/Kerosene		
Propane		
Solar		
Traditional Wood		
Wood pellet		
Other (specify)		

24. (a) Do you carpool? Yes ___ No ___

(b) Should the Town encourage more carpooling or public transit? Yes ___ No ___

(c) If yes, how? _____

25. Do you live on a dirt road?

Yes ___ No ___

See Next Page. The Planning Board is interested in your comments about Lyme's future.

26. Please answer the following questions (use space below or add sheets if you wish):

- (a) How would you describe Lyme?
- (b) What do you like best about living in Lyme?
- (c) What is the Town's biggest challenge for the future?
- (d) What should the Town do to address this challenge?

Thank you for completing this survey. Your opinion is valuable and needs to be counted. All responses will be anonymous.

Appendix B. -Traffic Volume Data

Road / Segment	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
New Hampshire Route 10:										
at Hanover Town Line (NHDOT)	3,300	*	3,600	*	*	3,100	*	*	2,800	*
over Grant Brook (NHDOT)	3,400	*	*	3,400	*	*	3,300	*	*	3,200
north of North Thetford Road (NHDOT)	1,984	2,058	2,004	2,074	1,997	1,868	1,979	1,900	1,750	1,759
at Orford Town Line (NHDOT)	*	*	*	2,200	*	*	2,100	*	*	1,700
Acorn Hill - Highbridge - Orfordville Roads:										
north of Dorchester Road	*	350	*	341	*	*	*	297	*	*
north of Pout Pond Lane	*	181	*	182	*	*	*	162	*	*
between Franklin Hill and Hardscrabble Roads	*	*	*	170	*	*	*	167	*	*
over Trout Brook	*	126	*	118	*	*	*	88	*	*
north of Pinnacle Road	*	187	*	147	*	*	*	145	*	*
at Orford Town Line	*	142	*	124	*	*	*	131	*	*
Baker Hill Road:										
south of Dorchester Road (NHDOT)	*	*	260	*	*	240	*	*	240	*
over Grant Brook	*	282	288	332	*	*	*	280	*	*
over Grant Brook (NHDOT)	*	*	260	*	*	240	*	*	*	*
north of Isaac Perkins Road (north end)	*	*	*	256	*	*	*	231	*	*
south of Isaac Perkins Road (north end)	*	170	193	199	*	*	*	178	*	*

north of Pico Road	*	196	216	212	*	*	*	203	*	*
over Hewes Brook	*	178	191	165	*	*	*	128	*	*
at Hanover Town Line	*	263	305	294	*	*	*	239	*	*
at Hanover Town Line (NHDOT)	*	*	170	*	*	260	*	*	*	*
Bliss Lane:										
at Pico Road	*	*	46	*	*	*	*	*	*	*

Road / Segment	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Breck Hill Road:										
at North Thetford Road	*	*	128	95	*	*	*	*	*	*
at River Road	*	*	53	*	*	*	*	*	*	*
Dorchester Road:										
west of Franklin Hill Road (NHDOT)	*	*	*	*	*	*	*	*	*	1,100
over Grant Brook East of Acorn Hill Road (NHDOT)	*	850	*	540	*	*	560	*	*	580
at Grafton Turnpike end	*	225	268	234	*	*	*	248	214	*
east of Flint Hill Road	*	166	202	177	*	*	*	*	*	*
over Perkins Brook	*	99	108	100	*	*	*	*	76	*
over Perkins Brook (X-Sking peak day volume)	*	*	*	*	*	*	*	*	*	581
East Thetford Road:										
at Vermont State Line (NHDOT)	*	*	*	2,500	*	*	2,300	*	*	2,500
Flint Hill Road:										
east end	*	*	*	*	*	78	*	*	*	*
west end	*	*	*	*	*	53	*	*	*	*
Franklin Hill Road:										
north of Dorchester Road	*	*	203	*	*	*	*	*	*	*

south of Acorn Hill Road	*	*	92	78	*	*	*	*	*	*
Goose Pond Road:										
between Route 10 to Rennie Road	*	1,287	1,490	1,232	*	*	*	1,245	*	*
between Route 10 to Rennie Road (NHDOT)	*	*	1,000	*	*	1,100	*	*	1,200	*
over unamed Brook between Rennie and Baker Hill Roads	*	439	493	492	*	*	*	394	*	*
west of Baker Hill Road	*	*	*	427	*	*	*	323	*	*
east of Baker Hill Road	*	379	429	567	*	*	*	326	*	*
east of Pico Road	*	276	*	375	*	*	*	276	*	*
at Hanover Town Line	*	272	349	340	*	*	*	246	*	*
at Hanover Town Line (NHDOT)	60	*	*	120	*	*	250	*	*	210

Road / Segment	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Grafton Turnpike:										
at start of Town maintenance	*	377	430	382	*	*	*	307	*	*
east of Dartmouth Skiway	*	251	274	273	*	*	*	258	*	*
east of Canaan Ledge Lane	*	208	190	222	*	*	*	*	*	*
at Hanover Town Line	*	153	116	146	*	*	*	*	*	*
Gregory Road:										
at Breck Hill Road	*	*	55	*	*	*	*	*	*	*
at River Road	*	*	45	*	*	*	*	*	*	*
Market Street:										
at On the Common	*	285	*	*	*	*	*	*	*	*
over Grant Brook	*	55	*	*	*	*	*	*	*	*
over Grant Brook (NHDOT)	*	*	30	*	*	70	*	*	60	*
North Thetford Road:										
over Clay Brook (NHDOT)	*	450	*	280	*	*	340	*	*	340

Pico Road:										
at Goose Pond Road	*	*	65	87	*	*	*	*	*	*
at Baker Hill Road	*	*	50	*	*	*	*	*	*	*
Pinnacle Road:										
at Route 10	*	502	*	*	*	*	*	377	*	*
end of pavement (east of Masa Morey Lane)	*	*	*	*	*	291	*	250	*	*
over Trout Brook	*	*	*	235	*	*	*	*	*	*
over Trout Brook (NHDOT)	*	*	230	*	*	220	*	*	240	*
wast of Highbridge/Orfordville Roads (by school)	*	236	*	214	*	*	*	200	*	*
east of Highbridge/Orfordville Roads:	*	49	*	55	*	*	*	*	*	*
Post Pond Lane:										
at North Thetford Road	*	*	115	*	*	*	*	*	*	*
Pout Pond Lane:										
at Acorn Hill Road	*	*	141	133	*	*	*	*	*	*

Road / Segment	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Preston Road:										
at Route 10	*	*	66	*	*	*	*	*	*	*
at Washburn Hill Road	*	*	37	*	*	*	*	*	*	*
Rennie Road:										
at Hanover Town Line	*	912	840	768	*	*	*	*	*	*
River Road:										
at Hanover Town Line	*	386	494	494	*	*	*	456	*	*
over Hewes Brook	*	421	449	486	*	*	*	506	*	*
over Hewes Brook (NHDOT)	*	*	400	*	*	640	*	*	520	*
over Grant Brook	*	*	485	550	*	*	*	553	*	*

over Gant Brook (NHDOT)	*	*	440	*	*	440	*	*	500	*		
south of East Thetford Road	*		557	557	697	*	*	*	621	*	*	
north of East Thetford Road	*		433	459	486	*	*	*	441	*	*	
south of North Thetford Road	*		336	325	368	*	*	*	338	*	*	
north of North Thetford Road	*		271	307	356	*	*	*	310	*	*	
over Clay Brook	*		256	285	234	*	*	*	260	*	*	
over Clay Brook (NHDOT)	*		*		170	*	*	*	170	*	*	
at Orford Town Line	*		*	*	*	*	*	*	*	*	*	
Shoestrap Road:												
at Route 10	*		*		139	*	*	*	n.a.	n.a.	n.a.	*
at River Road	*		*		59	*	*	*	n.a.	n.a.	n.a.	*
Trout Pond Lane:												
at Trout Pond Forest Boundary	*		*		*	6	*	*	*	*	*	*
Washburn Hill Road:												
at Route 10	*		*		43	*	*	*	*	*	*	*
north of Preston Road	*		*		17	*	*	*	*	*	*	*
Whipple Hill Road:												
at Route	*		*		197	*	*	*	*	*	*	*
at Pinnacle Road	*		*		49	*	*	*	*	*	*	*

Appendix C. Appendix C -Photograph Credits

Page	Thumbnail	Description and Credit
1-4		Holts by Watershed to Wildlife, Inc.
1-5		Memorial Day observance on the Common by R. G. Jones
1-6		Beginners' slope at the Dartmouth Skiway by E. Garity
1-6		Lyme Country Store by M. Bowden
3-1		Fred Stearns grading Baker Hill Road by R. G. Jones
3-7		Goose Pond Road bridge over Hewes Brook by R. G. Jones
4-1		New town offices and police station by E. Garity

4-1		Fire Station by R. G. Jones
4-2		Converse Free Library by R. G. Jones
4-3		Highway Garage and Transfer Station by R. G. Jones
4-4		Highland Cemetery by R. G. Jones
4-4		Chase Beach by R. G. Jones
4-5		Lyme Center Academy Building by R. G. Jones
4-5		Lyme School by R. G. Jones
6-10		Walking Fern by Watershed to Wildlife, Inc

6-10		Large Yellow Lady Slippers by R. G. Jones
6-12		Peregrine Falcon Chicks by Audubon Society of NH
6-12		Common Loons courtesy of T. Morrisey
6-13		Pout Pond by Watershed to Wildlife, Inc.
10-2		Lyme Center Academy Building by Anne Baird
10-2		Lyme Horse Sheds by E. Garity
10-4		Moses Kent House By Tim Cook
Starting 10-8	All historic agricultural structures photographs by R. G. Jones	

