

MASTER PLAN

City of Lebanon 2012

*a comprehensive plan to implement
the community vision for 2030*

Adopted by the Lebanon Planning Board
March 26, 2012



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1| Introduction

1|A Guiding Principles

1|A-1 Residents First

This Master Plan has been developed in accordance with Lebanon’s “Residents-First” policy adopted on June 18, 2008 by the City Council:

All actions and policies of the government of the City of Lebanon shall be intended first and foremost to benefit the current residents of Lebanon.

Residents have consistently communicated their support for the following core concepts to City planners and officials at public forums held throughout the process of developing this plan:

- Support of smart growth principles.
- Improvement of civic participation and transparency in government through better communication and varied, manageable opportunities for involvement.
- Consideration of the impact of new development on City services.
- Development of a comprehensive, multi-modal transportation plan.
- Improvement of bikeways, walkways, and public transit systems (recreational-commuter corridors).
- Stewardship of natural and recreational areas.
- Balance between environmental sustainability and landowner rights.

1|A-2 Purpose Statement

The input of residents guided the writing of this plan beginning with the following purpose statement intended to set the plan’s tone and direction:

With this plan, the City of Lebanon presents a collective philosophy for the management of development. The City shall sustainably manage its physical, social, and economic development in such a way as to maintain a pleasant, healthy, safe and stimulating environment for all residents. The City recognizes that this will be balanced by respect for and protection of the rights of all property owners.

1|A-3 Sustainability Principles

The City of Lebanon defines sustainability as meeting the needs of the present without compromising the ability of future generations to meet their needs. Lebanon has recognized that in order to best serve its residents, City government must become more sustainable, effective, and responsive. The City Council adopted “Principles for a Sustainable Community” on February 18, 2009, addressing seven essential areas in which better local government can make a positive difference in our community. The policies and recommended actions of this plan are intended to implement the City’s sustainability principles.



- All actions and policies of the government of the City of Lebanon shall be intended first and foremost to benefit the current residents of Lebanon.
- The City shall sustainably manage its physical, social, and economic development in such a way as to maintain a pleasant, healthy, safe and stimulating environment for all residents. The City recognizes that this will be balanced by respect for and protection of the rights of all property owners.
- The City has adopted sustainability principles addressing seven essential areas in which better local government can make a positive difference in our community. The policies and recommended actions of this plan are intended to implement those principles.

1. **Community Access and Engagement.** Good government requires that we welcome the public’s participation and honor the public trust. Cornerstones of public trust include effective outreach, communication, accountability, and transparency. Encouraging broad, inclusive collaboration in local government decisions recognizes that all levels of government, together with the non-profit and private sectors, have a stake in creating and implementing mutually beneficial policies. Improving public access to information and processes can make City government more accountable, transparent, fair, and responsive to community needs. At the same time, because state and federal government decisions affect our community, we can effectively advocate our interests by increasing our participation at those levels.
2. **Sense of Place.** The traditional character of Lebanon and Northern New England anchors our community identity, civic pride, and quality of life. Preserving the character of existing neighborhoods, and promoting harmonious character in new neighborhoods, helps keep our City unique. Revitalizing and supporting our two downtowns, Lebanon and West Lebanon, helps maintain key focal points for community activity. Preserving the rural landscape supports farm- and forest-based activities, contiguous tracts of open space for people and wildlife, and highly valued scenic assets.
3. **Environmental Responsibility and Energy Efficiency.** A healthy natural environment in turn sustains human physical, mental, and fiscal health. Scientific data and practical experience confirm the value of identifying, avoiding, minimizing, and repairing environmental harm. We benefit from clean air, abundant drinking water, productive soils, and diverse ecosystems. Protecting and strengthening our community’s natural resources—including the ability to raise food and timber—enhances our economy and capacity to withstand floods, drought, and other potential disasters. Conserving green infrastructure—a network of open space, waterways, and other natural areas—is vital to this effort. Partnering with citizens, landowners, schools, businesses, organizations, and other governments, we can responsibly enjoy natural assets now and for many years to come. The City can lead by example in following or exceeding best-management practices for all operations. For example, energy efficiency is critical to environmental health and community prosperity. Everyone can help promote energy conservation and more sustainable technology.
4. **Intelligent, Coordinated Development and Transportation.** Sprawling development detracts from many of the principles outlined here, and should be discouraged if we are to secure those assets that have made our community desirable. Coordinating infill development, adaptive re-use of existing buildings, and conservation design for new development will maintain traditional compact settlement patterns and efficiently use existing infrastructure. Developing attractive human-scale, mixed-use, walkable-bikable neighborhoods will help conserve and enhance quality of life – especially with an integrated multi-modal transportation system to promote alternatives to the automobile. Benefits include less traffic congestion, less air pollution, less wear and tear on roads, and safer access for people of all ages and abilities. Managing an orderly pace of development will minimize negative effects on City finances from associated needs for increased facilities and services as the City grows.
5. **Economic Vitality.** The continued vitality of our local economy depends upon proactively positioning our community for a changing world. The City must foster a green, innovative and diversified business environment as it supports a healthy climate for existing enterprises. Local companies have shown that they can compete and succeed in a global economy. Identifying sustainable industry niches that we can fill and successfully compete within, and attracting sustainable businesses within those niches, will

strengthen overall quality of life. For example, encouraging local markets and community-supported agriculture can revitalize the rural economy. Providing a range of affordable housing options and incubating high-tech, medical, recreational, and creative businesses can help strengthen our job base, especially by promoting training for a skilled, diverse, productive workforce. All of these activities will encourage further community investment, reduce poverty, and promote prosperity.

6. **Fiscal Responsibility.** The City’s finances must be managed such that current and future generations of residents can afford to live here. The alternative will erode the traditional socioeconomic diversity that has distinguished our community from some of our neighbors. City budgets must judiciously assess and prioritize current demands, keeping debt low while making selective investments such as energy efficiency to meet future needs. Careful attention to land use and tax policy, such as promoting redevelopment in order to increase asset valuations, can raise new revenues without incurring new costs for municipal services. Incentives for sensible frugality can yield further savings. Above all, fiscal responsibility depends on continuing to improve transparency and public understanding of municipal budgetary matters.
7. **Regional Leadership.** Lebanon has become the hub of the Upper Valley. The City, as well as the region, can benefit by actively engaging with neighboring towns to achieve common goals and address common challenges and opportunities more effectively. Financial and operational efficiencies may result from economies of scale. Encouraging a regional view of community interdependence while respecting local autonomy can enable the community to manage growth locally and collaborate regionally. We should promote positive innovation and excellence by achieving and exceeding best-management practices.

1|B The Master Plan

1|B-1 Purpose of the Master Plan

The State of New Hampshire authorizes cities and towns to adopt a master plan in order to manage development within their jurisdictions. The state defines a master plan as: public policy duly adopted by a municipality to manage physical and socioeconomic development. Being duly adopted, this Master Plan for the City of Lebanon is an official, legal document expressing City policy.

A master plan is the statutorily-required basis for zoning, subdivision, and site plan regulations as well as the annual capital improvement program and other City planning projects. It provides a vision for the City’s growth and development, which the City then implements through various regulatory and non-regulatory actions. In essence, this plan is the foundation for the management of the City’s future.

1|B-2 History of the Master Plan

The City of Lebanon adopted its first master plan in 1957 and has regularly updated it following review of existing conditions within the City and discussion with residents about what they want for their community’s future. Prior to adoption of this plan in 2012, revised master plans were adopted in 1970, 1977, 1986, 1993 and 2006.



key points | the master plan

- This Master Plan provides a vision for the City’s growth and development and is the foundation for the management of the City’s future.
- Lebanon adopted its first master plan in 1957 and has regularly updated it since.
- Many citizen volunteers have been involved in the master planning process through public forums and advisory committees including members of the Planning Board, City Council, and other boards, commissions, and community groups.
- This 2012 Master Plan resulted from a process to refine the 2006 plan and re-engage the public in forums and chapter review subcommittees.
- The Planning Board adopts the Master Plan and the City Council will be requested to adopt the plan.
- The vision for each chapter of the Master Plan is supported by a set of outcomes, strategies, and action items that provide an outline for implementation.

1|B-3 **Citizen Involvement in the Master Plan**

This Master Plan has been prepared under the auspices of the Planning Board. New Hampshire law encourages municipalities to involve its citizens in the preparation of a master plan in a way that is most appropriate for the municipality. There is no better-qualified group of people to set policy for the physical and socioeconomic development than the municipality's own citizens.

The drafting of Lebanon's 1993 Master Plan set a new precedent for citizen participation in planning, which has since come to play an integral role in subsequent master plan revisions. Since then, many citizen volunteers have been involved in the master planning process through public forums and advisory committees. These volunteers included members of the Planning Board, City Council, and other boards, commissions, and community groups. This collective work provided a solid foundation for the same kind of approach to the drafting of this plan.

1|B-4 **Most Recent Update of the Master Plan**

Many of the concepts and themes expressed in this 2012 Master Plan are rooted in the "Lebanon: A Look Ahead" community forum held in 1999. A local steering committee, assisted by Vital Communities of the Upper Valley and UNH/Grafton County Cooperative Extension Service, brought 100 people together for a weekend to produce a report, which outlined the basic ideas that became the 2006 Master Plan.

After the successful adoption of a revised master plan in June 2006 by the Planning Board, and subsequent endorsement by City Council, work commenced on a zoning amendment to implement the plan's policies. When the zoning amendment referendum did not pass in 2008, the Planning Board, at the request of the City Council, created a new Master Plan Steering Committee for the purpose of determining whether or not the issues, goals, and objectives expressed in the 2006 plan were relevant to the community in 2009. With assistance from the University of New Hampshire Cooperative Extension, the steering committee undertook a process to refine the 2006 plan and re-engage the public in forums and chapter review subcommittees. The Planning Board, City Council and Conservation Commission, as well as members representing the chapter working groups, and residents at large, reviewed revised master plan materials in public meetings, resulting in this 2011 Master Plan.

1|B-5 **Adoption of the Master Plan**

The Planning Board, pursuant to New Hampshire law (RSA 674:1), adopts the Master Plan. There is no mention in law as to whether or not the City Council should also adopt the plan, but action by the council is important since many of its decisions may either support or contradict the plan's policies. Therefore, the City Council will be requested to adopt the Lebanon Master Plan.

1|B-6 **Master Plan Implementation, Amendments and Updates**

The vision for each chapter of the Master Plan is supported by a set of outcomes, strategies, and action items that provide the outline for implementation. Lebanon staff and City boards and commissions will use the Master Plan to guide their policies and actions for a 20-year planning horizon.

The Master Plan provides the framework for achieving the vision for Lebanon out to year 2030, while the subsequent development of topic implementation plans based on chapters of the Master Plan, e.g. housing,

economic development, and transportation implementation plans, will provide a greater level of specificity directed at realizing the overall vision and outcomes set forth in the Master Plan.

The Master Plan will continue to be dynamic in nature, requiring periodic updates at desired time intervals in an effort to re-assess community visions, and assess the status as well as potentially alter or modify desired outcomes, strategies, and action items as changing conditions warrant.

1|C

The City of Lebanon

The City of Lebanon, New Hampshire - together with our neighboring communities of Hanover, New Hampshire (to the north) and Hartford, Vermont (to the west) - is the regional center of the Upper Connecticut River Valley. Lebanon is a thriving small City that offers our 13,151 residents (2010 Census) the best of rural and urban living - a fact that was recognized by our being ranked third in a recent listing of the 100 Best Small Towns in America.

Approximately 19,000 people work in our City, including at the Dartmouth-Hitchcock Medical Center (DHMC) campus, in one of the many high-tech companies located in our business parks, at one of the national or local retail stores or restaurants in our commercial areas, or at a small business in one of our historic central business districts. Lebanon's infrastructure — state-of-the art telecommunications, direct interstate highway access, public water and sewer systems with available capacity, and recently resumed freight rail service — supports a dynamic and diverse business community.

1|C-1

Natural Landscape

Lebanon developed along the Connecticut and Mascoma Rivers and the natural landscape is characterized by the ridgeline and undulating hills that define the river valleys. The Mascoma River serves a dual role of linking historically the eastern and the western ends of the City and of partitioning the north from the south. The Connecticut River serves as a landmark that defines our City limits on the west and ties the northwest section of Lebanon with the southwest corner.

1|C-2

Built Landscape

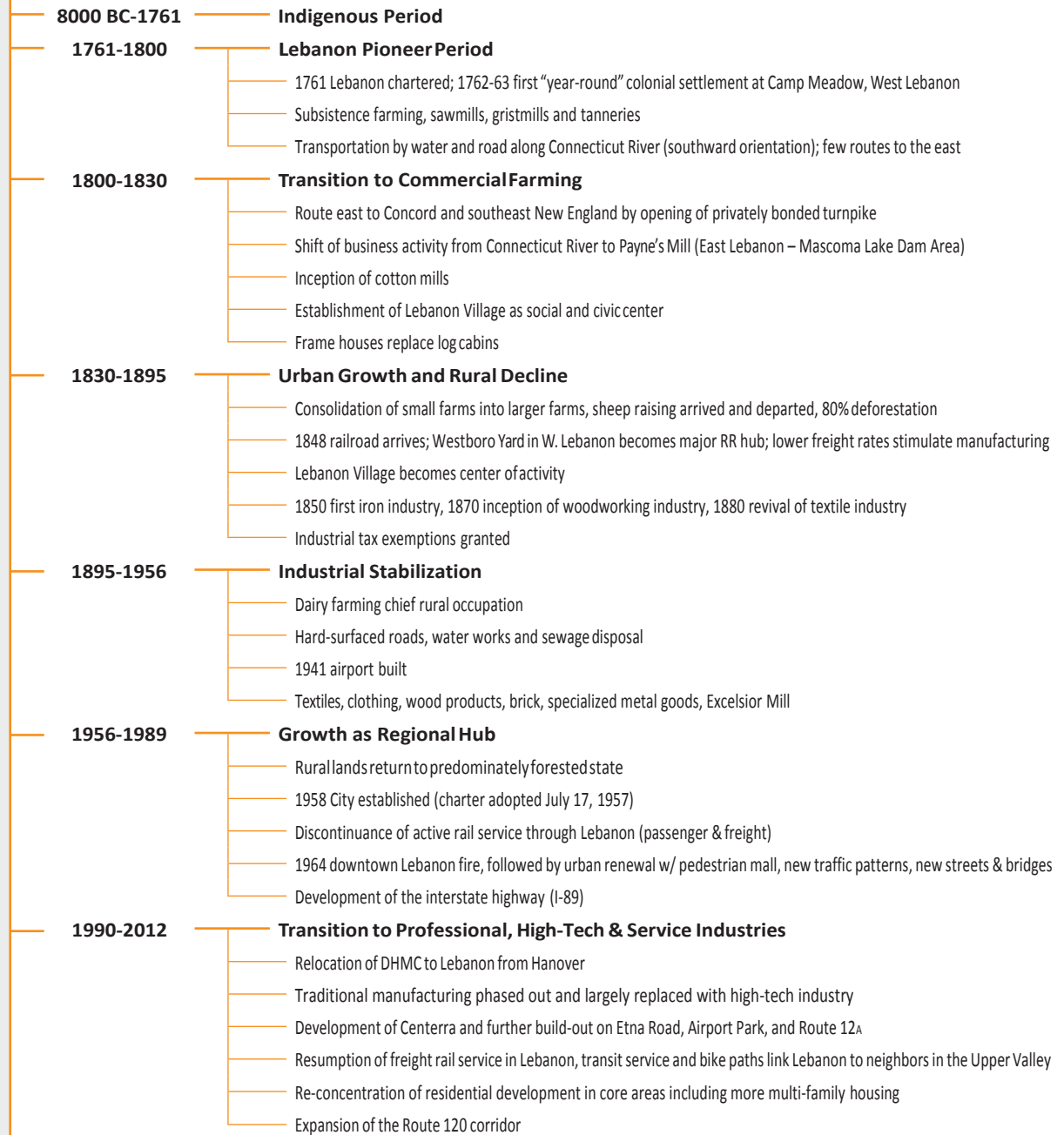
Today, our built landscape is a composite of traditional and modern land use patterns. Lebanon's early use of land replicated traditional European development patterns - a dense urban center surrounded by farm and forest land. That land use pattern remains within our two urban centers, located in the river valleys, one in central (Lebanon village) and the other in western (West Lebanon village) part of the City. Spurred by the construction of Interstate 89, a new pattern began to emerge 50 years ago. The modern land use pattern included the large-lot residential development in rural areas and retail strip development along the main highways now described as suburban sprawl.

While much development has occurred outside the traditional urban centers in recent decades, we are fortunate to have retained a substantial amount of rural land. The value of these open, rural spaces to the City's quality of life is now widely recognized. Lebanon's land use patterns are again shifting - from auto-dependent, low-



- The City of Lebanon is the regional center of the Upper Connecticut River Valley.
- Lebanon developed along the Connecticut and Mascoma Rivers and the landscape is characterized by ridgelines and undulating hills that define the river valleys.
- Lebanon's early settlement pattern resulted in a dense urban center surrounded by farm and forest land. A new pattern began to emerge 50 years ago as development occurred outside the traditional urban centers. Lebanon's land use patterns are shifting back to pedestrian-friendly, higher-density, mixed-use smart growth that will focus growth in core developed areas and conserve open space.
- More than 13,000 people live and approximately 19,000 work in the City. The City is approximately 25% developed and 75% undeveloped land.





density suburban sprawl that would consume our remaining rural lands to pedestrian-friendly, higher-density, mixed-use smart growth that will focus growth in our core developed areas and conserve open space.

1 | C-3 **Community Snapshot**

1 | C-3a **People.** Lebanon’s 2010 population was 13,151 people and during the 2000s the number of residents grew at an average annual rate of 0.5%. In 2010, Lebanon accounted for 15% of Grafton County’s total population. During the 2000s, our population continued to increase at a slower rate than the county or state. Our population growth rate was higher than the rate in the Upper Valley communities of Hanover, Enfield, Claremont, Hartford and Norwich, but was lower than the rate in Plainfield, Canaan, Grantham and Springfield during the 2000s. In terms of absolute population growth, Lebanon added more residents than any of those Upper Valley communities with the exception of Canaan and Grantham. During the 2000s, most of Lebanon’s population growth was a result of natural increase (births minus deaths) rather than migration (people moving in minus those moving out).

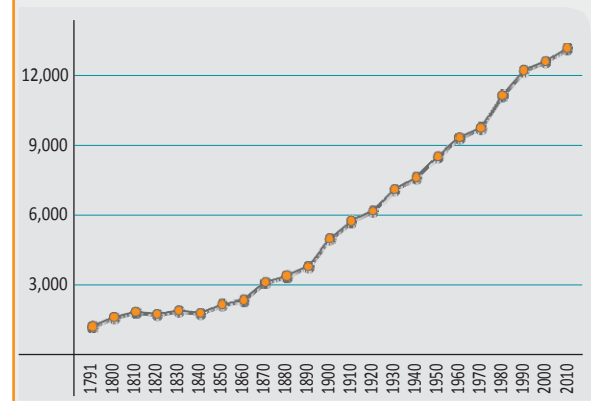
As of 2010, Lebanon:

- Had a larger number of preschool-age children and a smaller number of school age children and youth than in 2000
- Had an increase in both the younger (20-34 years) and older (45-64 years) workforce cohorts since 2000
- Had a growing senior population (65+ years)
- Residents are more likely to be a New Hampshire native than the average state resident
- Residents spend less time commuting than the average state resident
- Residents are less likely to be married than the average state resident
- Residents are more educated than the average state resident
- Had an estimated “day-time” population of 25,000 to 35,000, including commuters, patients, shoppers and others traveling into the city from throughout the region

In 2005, the New Hampshire Office of Energy and Planning projected that the Lebanon population would reach 14,180 residents by 2030.

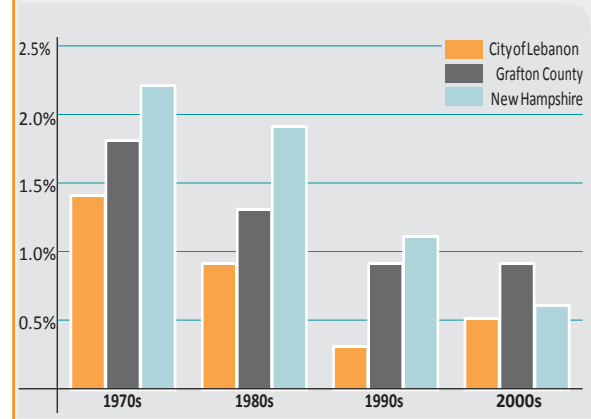
1 | C-3b **Built Environment.** Lebanon added 942 housing units during the past decade, representing a 16.5% increase. The absolute number exceeds that of neighboring communities of Hanover (450), Hartford (323), and Claremont (614). The percent increase is close to identical to that of Grafton County (16.9%), and exceeds both the NH State rate (12.4%) and Vermont State rate (9.6%). Lebanon Housing Units are 49.3 owner occupied and the 2010 overall vacancy rate for Lebanon Housing units is 7%. (2010 Census)

Non-residential development in Lebanon includes general commercial (e.g. retail, industrial and Office), public institution, and medical use. Starting in the 1960s, Lebanon has demonstrated robust non-residential growth. Currently, there is believed to be 8.8 million square feet of non-residential development within the City (11% public institution, 21% medical and 68% general commercial/industrial/Office).



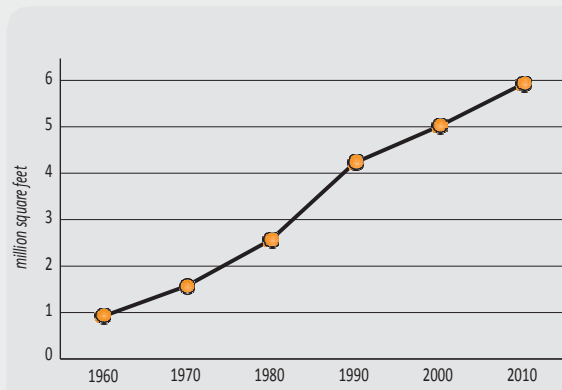
Lebanon's total population

US Census Bureau



city, county and state average annual population growth

US Census Bureau



total non-residential space (excluding medical & government)
Lebanon Planning Office

During the 2000s, more than 75,000 square feet of public institution use was added to the City, including the Moses Sanville DPW facility, Grafton County Senior Center, Veterans Memorial Pool, Airport Hangars, and both new and expanded religious buildings.

Medical use in the 1980s was estimated to account for less than 100,000 square feet, consisting of the Alice Peck Day Memorial Hospital. During the 2000s, approximately 700,000 additional square feet were added to the approximately 1.0 million square feet built in the 1990s. Dartmouth Hitchcock Medical Center, including the main building and additional campus structures, accounted for the vast majority of this development.

In 1959, there was approximately 850,000 square feet of general commercial and industrial space in the City. The average amount added per decade since has been just shy of 1 million square feet, with a high of 1.35 million square feet in the 1980s and a low of 626,000 square feet in the 1960s. The 2000s brought an additional 1.07 million square feet. Current proposed projects, if approved by the Planning Board, would ensure that the decade average is met or exceeded out to 2030.

- 1 | C-3c **Natural Landscape.** As documented in Lebanon’s Landscape Report (2008), the City is approximately 25% developed and 75% undeveloped land. The vast majority of the undeveloped land is forested with a small percentage of open field, active farm, or shrubby woodland. There are approximately 2,100 acres of permanently protected land, representing 11% of the undeveloped land. It is estimated that the City of Lebanon was 7.1% developed as of 1955.

2| Land Use

2|A Vision & Purpose

The City of Lebanon shall promote balanced land use that fosters the thoughtful development of our urban and densely settled cores and conserves existing rural and natural areas. Our land use policies and regulations shall seek to balance the need for preservation of rural areas, open spaces, wildlife habitat and natural resources with the need and demand for growth and development through carefully considered planning and decision-making.

The City shall seek to secure a high quality of life for our citizens by accommodating growth that considers the broader social, economic, and environmental issues, and meets the goals contained within this Master Plan, while respecting the rights of all landowners. We shall take into consideration the intrinsic value of the natural surroundings as well as the interests of the many stakeholders, interest groups, and citizens that make up our community. The City shall continue to be guided by Lebanon’s “Principles for a Sustainable Community” (see the Introduction of this plan) when considering land use, growth and development issues, including weighing the effects of today’s decisions on future generations.

2|B Issues & Priorities

2|B-1 Role as a Regional Center

Lebanon’s central role in the Upper Valley’s regional economy creates both opportunities and challenges for the community. While the City’s role as a regional center offers access to a diverse array of jobs, goods, and services, taxpayers must bear increased costs due to the resulting demand for City services. With continuing pressure for the City’s regional role to expand, the small-town quality of life valued by residents could disappear if the City overlooks the associated impacts of development on neighborhoods, natural resources and capability to provide municipal services.

The concept of Lebanon as a regional center is supported by the U.S. Census Bureau’s classification of Lebanon as a Micropolitan Statistical Area, as well as reflected in an estimated daytime population between 25,000 and 30,000 that is more than double the resident population of 13,151.

2|B-2 Smart Growth Principles

Frustrated by the growth patterns that emerged in the second half of the 20th century, which spread new development out over large areas and required residents to drive long distances between jobs, homes and services, many communities are turning to a new approach termed ‘smart growth’. Smart growth describes a pattern of land development that uses land efficiently, mixes rather than segregates uses, supports transportation alternatives and protects natural resources.

Incorporating smart growth principles into Lebanon’s planning, development review and decision-making processes will also further our sustainability goals. Focusing new development within and adjacent to already de-

key points | vision & purpose

- Promote balanced land use and development patterns
- Maintain a high quality of life
- Respect the rights of property owners
- Protect open space while accommodating growth
- Be guided by the City’s sustainability principles

key points | issues & priorities

- Acknowledge role as regional center while preserving small-town character and quality of life
- Promote smart growth by guiding new development to those areas of the City already served by public infrastructure
- Define the City’s core developed areas and focus growth in those areas through revitalization, redevelopment and infill
- Recognize the value of the working lands and open space remaining in the City’s outlying rural areas and seek to conserve those natural resources for future generations

smart growth principles

- Strengthen and direct development towards existing communities
- Mix land uses
- Foster distinctive, attractive communities with a strong sense of place
- Take advantage of compact building design
- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Provide a variety of transportation choices
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Encourage community and stakeholder collaboration in development decisions
- Make development decisions predictable, fair, and cost effective



city hall in downtown lebanon

Photo by: Doug Kerr



veloped areas requires less public investment in public roads, infrastructure and services. It also directs growth away from outlying rural lands, conserving working land and open space for future generations.

One of the principal tenets of smart growth is that it is better to encourage development close to existing urban centers and services, and discourage it in rural areas. Lebanon residents generally support this concept, but they neither wish to overload existing urban neighborhoods nor prevent rural development outright. Consequently, we must find a balanced approach to development that encourages appropriate infill and redevelopment in existing centers, and protects rural character and natural resources in outlying areas.

2 | B-3

Downtowns and Core Developed Areas

Historically, Lebanon developed with two centers – Lebanon and West Lebanon. These two centers each have the dense, mixed-use core (Lebanon’s central business district and a smaller business district in West Lebanon) surrounded by compact, primarily residential neighborhoods typical of New England villages built prior to World War II.

These two traditional centers continue to offer a mix of institutional, retail, service, residential and cultural land uses in their business districts and associated core developed areas where existing infrastructure supports a mix of residential neighborhood and non-residential uses. A symbiotic relationship exists between the downtowns and their associated core developed areas, with each promoting the vibrancy and vitality of the other. Each center has its unique strengths and weaknesses (see Chapters 3 and 4 of this plan). Both villages have the potential to serve as viable centers of the community into the foreseeable future.

These two traditional centers are not the only developed areas in Lebanon, however. During the past 50 years, substantial development has occurred south of West Lebanon’s traditional center along Route 12A and along the Miracle Mile between West Lebanon and Lebanon. More recently spurred by the relocation of the Dartmouth-Hitchcock Medical Center (DHMC) to Route 120 in Lebanon, a formerly undeveloped part of the City has been experiencing rapid development.

These areas present a planning challenge for the City. Should the commercial development along Route 12A be considered part of the West Lebanon core developed area? Should the Miracle Mile between Lebanon and West Lebanon be considered part of the two traditional core developed areas? Should DHMC and the development occurring around it be considered a third core developed area in the City? Additionally, should the lands between these developed areas be considered part of these core developed areas?

As it is recognized that healthy and vibrant centers boost the quality of life and economic health of communities, land use planning in Lebanon should continue to support downtown revitalization, to focus growth within our core developed areas, and to promote development in accordance with the principles of sustainability and smart growth. Central to our planning effort is a need to define the City’s core areas. The boundaries of the downtowns or central villages are fairly well defined and described elsewhere in this plan, but the surrounding core areas are not — including whether the opening of DHMC, development of Centerra Business Park, and current plans for additional development in the Route 120 North area, including additional residential development, solidify this as Lebanon’s third urban center.

2|B-4 **Rural Land and Outlying Areas**

Lebanon’s rural lands and outlying areas have experienced a general development pattern that includes historic clearing for agricultural use, subsequent conversion back to forest as marginal farmland was abandoned, scattered development of single-family homes primarily along the roadways, and in recent decades several larger-scale rural subdivisions that have created pockets of more intense development.

The same sustainability and smart growth principles that promote development within already developed areas, also guide development away from outlying rural areas not served by existing infrastructure. As highlighted throughout this plan, planning for the future of our rural lands will require a delicate balance between preserving landowners rights, while addressing the concerns that increased development may require City services to be supplied inefficiently, and the cost of that inefficiency would be borne by all City taxpayers.

2|C **Existing Conditions & Trends**

2|C-1 **Settlement Pattern**

As described previously in this plan, Lebanon historically was characterized by densely populated residential and intensively developed commercial cores in Lebanon and West Lebanon villages, both of which were surrounded by sparsely populated residential, agricultural, and forested land. This traditional pattern has eroded somewhat during the past 50 years as development spread into outlying areas spurred by easy highway access, regional growth pressures, and a robust economy.

The shift in our settlement pattern is evident in the commercial development along the:

- Route 12A corridor, which has become a regional retail magnet serving a clientele that far exceeds Lebanon’s residential population,
- Route 4 corridor (Miracle Mile) between Lebanon and West Lebanon, and
- Route 120 corridor north of I-89, driven by the relocation of the Dartmouth-Hitchcock Medical Center and current development of the Centerra Business Park.

The shift has also affected residential development patterns, resulting in:

- Scattered single-family residential development that has spread into rural outlying areas (along the Hardy Hill-Sunset Rock-Stevens Road, Daisy Hill, and Poverty Lane areas), and
- Large subdivisions occurring outside of the village centers (Kings Grant, Prospect Hills, Rock Ridge).

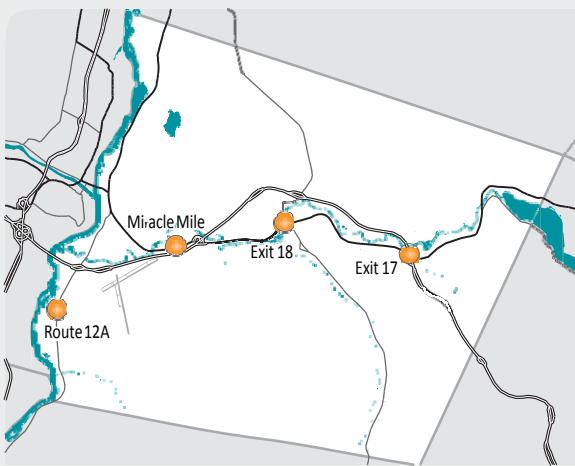
More recently, evidence of a shift back towards more compact development within and adjacent to our traditional centers is found in the:

- Subdivisions and multi-family developments on the edge of the village centers (The Falls, Reed Court, Westboro Woods, Romano Circle, Nature Walk, the Boulders, Timberwood), and
- Multi-family development within the village centers (Emerson Gardens), and
- Age-restricted housing somewhat near the village centers (Harvest Hills/The Woodlands, Quail Hollow).



key points | existing conditions & trends

- Lebanon’s settlement pattern shifted from compact villages surrounded by sparsely populated rural lands to a more dispersed pattern with growth spreading along the highway corridors into outlying areas during the second half of the 20th century.
- The role of Lebanon’s traditional downtown business districts as retail centers has been largely eclipsed by the large-scale commercial development along Route 12A and Route 4, which have grown to become regional shopping destinations.
- Lebanon has become the premier employment center in the Upper Valley, largely due to the Medical Center and the associated high-tech industries that have located in our business parks.
- Lebanon residents have a range of housing choices, supporting the needs of a diverse population.
- Despite the amount of development during the past 60 years, Lebanon has retained a significant base of undeveloped rural land and natural resources.
- City policy and decisions about extending infrastructure to currently unserved land will significantly influence future growth and development patterns.
- The City has adopted zoning and subdivision laws to implement the land use goals set forth in previous master plans, but has not addressed all the recommendations of those plans, particularly with regard to resource protection.



commercial areas

2| C-2 Current Land Use

2 | C-2a **Central Business Districts.** The City has two downtown business districts – one in Lebanon with a large central green and an adjacent pedestrian mall, and the other in West Lebanon with a traditional main street bisecting a business district (see Chapters 3 and 4 of this plan). Both downtowns have faced the challenge posed by competition from the commercial areas along Routes 12A, 120, and 4 (Miracle Mile).

In response, the City has been engaged in ongoing downtown revitalization efforts in Lebanon and West Lebanon, including improvements in parking, circulation, streetscaping and public amenities. The City has largely maintained its institutional presence in downtown Lebanon, with many municipal services based in City Hall, as well as the Lebanon library and post Office. This presence has helped to maintain the district’s vitality, by providing residents and visitors with ongoing reasons to come downtown. In West Lebanon, the recently completed Kilton Library, as well as the state’s purchase of the Westboro Rail Yard and lines, combined with opportunities for improvement in the area recently acquired by the City, could foster further revitalization.

2| C-2b **Commercial.** The City has two main general commercial areas and a couple of smaller areas.

- **Route 12A.** The City’s largest commercial area is along the Route 12A corridor in the vicinity of I-89 at Exit 20. There is little land available to the south of I-89 for new development after increased construction in this area during the past decade. Some redevelopment and reuse of previously developed land has already begun to occur with further opportunities for additional redevelopment and more intensive use of existing sites. The primary constraints to further development along Route 12A include traffic congestion, a shortage of available land, and the Connecticut River and Mascoma River floodplains.
- **Miracle Mile.** The City’s second major general commercial area, known as the Miracle Mile, is along Route 4 east and west of I-89 Exit 19. This area has had a resurgence of interest recently, resulting in few vacancies, but little new construction or redevelopment. Its central location between Lebanon and West Lebanon, and existing level of development suggests that there are redevelopment opportunities in this area. There are, however, a number of natural and built constraints to major new development. Behind the existing Miracle Mile Plaza is a steep slope down to floodplain and wetlands associated with the Mascoma River. On the south side of Route 4 in the same area, I-89 itself poses a barrier. These constraints, however, do not preclude the potential for redevelopment and intensifying the use of existing sites.
- **Exit 18.** In the vicinity of Exit 18, there are several auto-related business (gas stations, convenience stores, auto dealerships, trucking facilities), as well as additional general commercial uses within close proximity (hotels, retail, etc.) In recent years, new construction and some redevelopment has been occurring in this area.
- **Exit 17.** The area around Exit 17 is currently moderately developed with less than a dozen small- to medium-scale general commercial uses, as well as scattered residences. The area is not served by public water and wastewater, and historically there has been opposition to a proposed increase in the intensity of non-residential uses in this area, including a prior request to build a park-and-ride lot or to expand the general commercial zone. Residents have also raised concerns about the impact of development on the quality of the Stoney Brook aquifer, the proximity to the City’s source water intake, and a general sentiment that Exits 18, 19, and 20 already serve the needs of the community for general commercial uses.

2 | C-2c **Industrial.** Lebanon is the leading industrial center in the Upper Valley, and is anticipated to continue in this role. The influence of Dartmouth College, the relocation of the Dartmouth-Hitchcock Medical Center, and expansion in the high-tech industrial sector have all expanded job opportunities within the City. The following areas have been planned for light industrial uses:

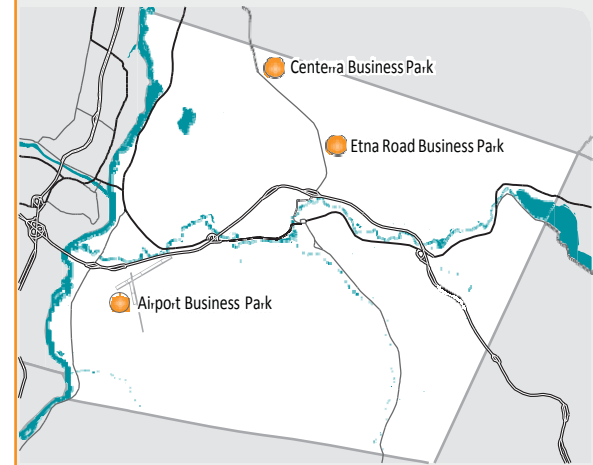
- **Centerra Business Park.** The large area east of Route 120 on the Hanover line, known as Centerra Business Park, is a mixed-use development that includes a restaurant, financial services, grocery store, Offices, light industrial, high tech, specialty shops and hotels. Its location near the Medical Center resulted in high demand and few lots remain vacant. In 2009, approximately 65 additional acres just east of the existing business park were rezoned from rural residential to light industrial to accommodate additional expansion. Much of the undeveloped land in close proximity to Centerra Business Park and along the Route 120 corridor remains valuable for natural habitat.
- **Airport Business Park.** The land area southwest of the airport contains an existing business park comprised of light industrial uses. The area was developed primarily during the 1990s with some significant additions completed in recent years. South of the existing business park there is land available for additional development by both the City and private property owners.
- **West Lebanon Industrial Rail Access Zone.** In 1999, the City rezoned a portion of land west of Seminary Hill at the end of Elm Street West to create an industrial area uniquely suited to businesses that are dependent upon or benefit from nearby rail access. As this area develops, significant buffers between the industrial uses and the abutting residential neighborhoods will be required, as will efforts to address the congested roadway network.
- **Etna Road Business Park.** Lebanon's other light industrial area along Etna Road is mostly built out with a diversity of industrial enterprises.

In addition, there is a heavy industrial zone located on Route 12A, centered on a substantial gravel extraction and processing facility. It is estimated that this gravel supply will last 75 years.

2 | C-2d **Medical Center.** The Dartmouth-Hitchcock Medical Center (DHMC), located in close proximity to Route 120 and the Hanover town line, is one of the largest medical centers in northern New England. DHMC owns more than 275 acres in this area. The Medical Center is a permitted use in this area, as well as ancillary uses that complement the hospital's activities, such as research and Office facilities. The developed portion of the center's land is surrounded by forested areas. Much of the undeveloped land owned by the Medical Center is constrained by deed restrictions and the presence of wetlands, shallow soils and steep slopes.

Closer to both downtowns, the Alice Peck Day Memorial Hospital (APD), serves Lebanon and surrounding communities. APD is a community hospital that includes the Harvest Hill and Woodlands retirement communities, doctors' Offices, and outpatient clinics on its campus, which is nestled in an established residential neighborhood along Mascoma Street.

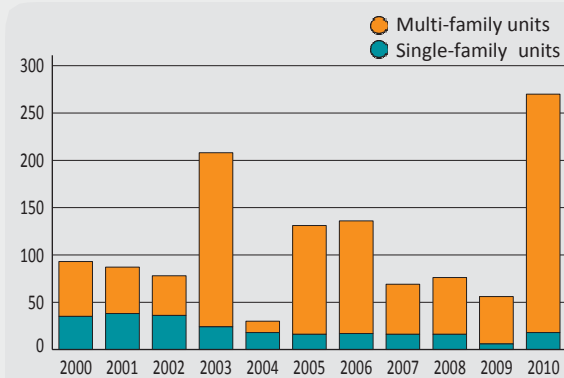
2 | C-2e **Residential.** The City has a diverse mix of housing stock and many attractive neighborhoods, including traditional single-family homes, duplexes, manufactured homes, and units in multi-family buildings in urban, suburban and rural settings (see Chapter 7 of this plan).



light industry / business parks



dartmouth-hitchcock medical center
Photo by: Braxton Freeman, Aerial Design



permits issued for new housing units
Lebanon Planning Office

During the 2000s, most new single-family residential construction occurred in compact settlement patterns such as Quail Hollow, The Falls and Sachem Village, or scattered throughout the City, including in the Hardy Hill area northerly toward Etna, in the Daisy Hill area, in the Dulac Street area, in the Poverty Lane area, on Seminary Hill, on Old Pine Tree Cemetery Road, on Prospect Hill, along Mascoma Lake, and on Route 4. Most of these locations are distant from the City’s central areas, representing the gradual suburbanization of rural land.

While single-family homes represent a significant percentage of the City’s housing stock, demographic and market trends suggest that Lebanon will experience increased demand for multi-family construction – a trend that is already evident. During the last decade, Emerson Gardens Apartments was permitted and constructed, and other large multi-unit developments were approved by the Planning Board, including Timberwood Commons.

2 | C-2f **Rural Land.** Development patterns from 1990 through 2009 showed a decline in the use of rural lands for agriculture in Lebanon. Economic changes in the agricultural sector, combined with increased development pressure, have gradually diminished the strictly rural and agricultural character of Lebanon’s outlying areas. Nevertheless, the few remaining large woodland, farm and orchard tracts in the City continue to play a valuable role in the region’s agricultural and forestry economies, and in maintaining the community’s rural character. In recent years, increased demand for local food has brought about a renewed interest in retaining land in agricultural and silvicultural use and a new economic model for small land-based enterprises.

Lebanon has not recently experienced many large-scale residential developments in its rural areas – the nature of development in those portions of the City is more piecemeal, as individual buyers build their own homes on isolated parcels of land. The hilly topography and lack of City water and wastewater service within Lebanon’s outlying areas also do not favor large-scale residential development.

2 | C-3 **Public Services**

The City provides a variety of services for its citizens and the region (see Chapters 8, 9 and 10 of this Master Plan). Each of these services and the City’s overall infrastructure is affected by the amount of employment, housing, medical, retail, and tourism activities that bring people to Lebanon to live, work, shop or visit. Demand for these services has increased from expansion of employment and residential development in the City and Upper Valley.

Although the City’s preference has not been to extend water and sewer lines, extensions have been allowed when developers were willing to pay for extensions and it was determined that capacity is available. Continuing this practice may result in haphazard growth in a number of areas including the Trues Brook area, Poverty Lane, the north end of Mascoma Lake, Daisy Hill and Storrs Hill, along Route 120 south, and Hardy Hill. While the City does not pay for the initial construction of new water and sewer lines, it may accept ownership subsequent to construction.

2 | C-4

Open Space Conservation and Natural Resource Protection

Lebanon retains an abundance of undeveloped open, forested, and agricultural land, much of which is in current use (see Natural Resources Chapter of this Master Plan). While land has steadily converted to residential, commercial, industrial, or public use over the last decade, gradually diminishing the rural character of outlying areas, approximately 70 percent of the City’s land area remains undeveloped. Of the approximate 19,000 acres of undeveloped land, approximately 2,000 acres are protected conservation land. In response to ongoing pressure for development of rural land, the City has devoted 100 percent of the receipts from the Land Use Change Tax to its conservation fund in order to acquire and protect priority land.

In 2010, the City completed a citywide natural resource inventory (NRI), titled *Natural Lebanon*. The natural resources inventory lists and describes important natural resources, such as wetlands, farmland and forestland, water resources, and geologic resources. In addition to maps, the NRI project includes the development of associated data and information sources and descriptive elements. The inventory provides the City, municipal boards and private landowners with a strong foundation for more informed decision making on all land use issues.

Some areas of the City have developed in spite of natural constraints (see Chapter 5 of this plan). Most land within the City characterized by steep slopes is in residential or rural areas, with the exception of a few sites developed for industrial and commercial uses that predate zoning. Considerable nonresidential development has taken place on hydric soils and in the 100-year floodplain. Singly such development is not necessarily problematic, but cumulatively could impact the City’s natural environment.

The Mascoma River is perhaps the most distinctive resource in Lebanon, as highlighted in the NRI. The river both links the eastern and western ends of the City, and partitions the north from the south. Running through the heart of the downtown, the river is a scenic treasure and its upper reaches, accessible from the Northern Rail Trail, feel very remote. The Mascoma River continues to serve critical functions as the source of Lebanon’s public drinking water and a place of visual beauty important for recreation, solitude, and wildlife habitat. In 2011, the Mascoma River became a designated river within the New Hampshire Rivers Management and Protection Program.

2 | C-5

Current Land Use Regulations

Lebanon’s current zoning ordinance includes multiple districts: three industrial (light industrial, rail access industrial, heavy industrial), five business (general commercial, central business, neighborhood commercial, professional business, medical center), three residential (residential one, two, three), two mixed use (residential Office, residential Office one), and three rural (rural lands one, two, three).

The City also has established several overlay districts with specific development restrictions that transcend zones: floodplain, wetlands, steep slopes, airport protection, historic, & landfill reclamation. Lebanon has established placeholders in the zoning ordinance for the additional overlay districts, which were recommended in the City’s 1993 Master Plan, but were never implemented: ridgeline, scenic corridors and aquifer protection.

Current Zoning Districts

Light Industrial (IND-L). Light manufacturing, distribution, service industries, planned business parks, and limited support activities.

Rail Access Industrial (IND-RA). Industrial uses best served by rail transport including manufacturing, distribution and service industries with appropriate support activities.

Heavy Industrial (IND-H). Industrial uses that are usually incompatible with other uses because of noise, dust, and heavy trucking.

General Commercial (GC). Retail and commercial development with good highway access such as stores, restaurants, service stations, banks, and offices.

Central Business (CBD). In-town retail and service establishments such as stores, restaurants, banks, offices, and governmental activities interspersed with higher housing densities and related uses.

Neighborhood Commercial (NC). Limited commercial uses, small in size, to serve neighborhoods with a relatively high density.

Residential One (R-1). All types of residential neighborhood uses with the highest allowable density, closest to downtown and services.

Residential Two (R-2). Older, established residential uses, primarily closer to downtown, and services that provide a mix of single-family, two-family, and multi-family converted dwellings.

Residential Three (R-3). Primarily for single-family residential neighborhoods relatively close to downtown.

Residential Office (R-O). Intended to guide the transition of some older neighborhoods from residential to small office use, primarily on busier streets near downtown and related services.

Residential Office One (R-O-1). Intended for compatible neighborhoods of small offices and higher-density housing.

Professional Business (PB). Intended to protect architecturally historic structures, support and promote business and commerce, and maintain the vitality of older existing downtown neighborhoods.

Rural Lands One (RL-1). Transition areas at the periphery of built-up areas, allowing agriculture and housing of less density than residential districts but of greater density than sparsely settled and/or more environmentally sensitive RL-2 and RL-3 zones.

Rural Lands Two (RL-2). Areas for agriculture as well as low-density housing between the RL-1 and RL-3 zones on 1 to 3 acre lots.

Rural Lands Three (RL-3). Environmentally sensitive land with poor access to highways and lacking public water and/or sewer; development is restricted to agriculture, forestry, and limited single-family housing on 10 acre lots.

Medical Center (MC). Area established for the Dartmouth-Hitchcock Medical Center-Medical School complex and ancillary uses including medical, educational, and research facilities served by public water and wastewater infrastructure.

Current Overlay Districts

Floodplain District. Designated on the Lebanon Flood Insurance Rate Maps of 1980, the district includes all special flood hazard areas for compliance with the Flood Damage Prevention Ordinance of 1980.

Wetland Conservation District. Designated to protect groundwater recharge and flood storage areas, water quality, wetland habitat, and aesthetic values; there currently are no required wetland buffers (except 100 feet for septic & 200 feet for underground chemical/fuel tanks).

Steep Slopes District. Designated to prevent development on slopes in excess of 25 percent grade within the RL-3 District, thereby minimizing soil erosion, stream sedimentation, loss of vegetation, on-site waste disposal problems, and costs for construction and maintenance.

Airport Protection District. Designated to ensure that adequate safety is provided for aircraft landing and taking off from the Lebanon Municipal Airport.

Historic District. Designated to ensure the preservation & heritage of structures & places of historic, architectural, & other cultural significance in the center of Lebanon.

Landfill Reclamation District. Designated to encourage the reclamation and alternative secondary uses of municipally-owned land that has been used for disposal of waste. Permitted uses include outdoor and indoor recreational facilities, and accessory uses to the secondary permitted recreational use.

Proposed Overlay Districts

Ridgeline District. Intended to protect the ecological and scenic values of higher elevation hilltops and ridgelines.

Scenic Corridors District. Intended to protect the scenic attributes of highway corridors in the City.

Aquifer Protection District. Intended to protect important groundwater resources that might serve as future public drinking water supply sources.

Special Uses

Planned Unit Developments and Planned Business Parks. Generally involving more than one building and/or parcel for residential, recreational, commercial, industrial, and/or mixed use.

Cluster Subdivision. Established to preserve significant natural features and open spaces by providing greater development flexibility for larger parcels of land.

Manufactured Housing Parks and Subdivisions. Established to provide standards for the appropriate development of manufactured housing parks on parcels between 10 and 50 acres and for subdivisions for manufactured housing on at least 20 acres.

Recreational Camping Parks. Established to provide standards for the development of campgrounds for recreational vehicles or tents and similar accommodations on parcels of at least 10 acres.

2|D

Future Challenges & Opportunities

The build-out analysis completed in 1999 by the Upper Valley Lake Sunapee Regional Planning Commission indicated that, if the City were built out to the maximum extent permitted under current zoning, Lebanon's theoretical population would grow to more than 30,000. The analysis indicated that at full build-out Lebanon would be a very different community than it is today with substantially greater demand for public services and infrastructure. The build-out analysis leads us to ask two fundamental questions:

- How big do Lebanon residents want their community to become?
- Is the right planning process in place to meet the predicted future demands, while achieving the goals set forth in this plan for the City, particularly those related to the form and pattern of future development?

The following discussion of future land use planning challenges and opportunities addresses those questions, and recommends actions and policy changes to guide the City's growth trajectory towards desired outcomes. This discussion is organized into three sections: the "what" (planning elements), the "where" (planning areas), as well as the "how" (tools we can use to plan for our City's future).

2|D-1 Planning Elements

2 | D-1a **Redevelopment.** Lebanon is the principal commercial and service center for the region. Although recent trends show that vacant buildings are being rehabilitated and reused, existing sites and facilities continue to be under-utilized. Emphasis should be on revitalization, redevelopment, infill and sustainable use of the City's core developed areas. Economically vital, urban cores will allow the City to promote additional adjacent development, rather than development of rural areas.

At a neighborhood scale, the City should identify neighborhoods that have the characteristics suitable as redevelopment areas or pods. At a building scale, for example, professional Offices are well suited to many older, under-utilized properties, as they often have flexible space requirements and may not necessarily require high visibility.

2 | D-1b **Outlying Development.** Development of outlying land presents a challenge to the City. Such development can:

- Stress the City's capacity to provide adequate public services and result in municipal budget increases
- Fragment the City's remaining large tracts of undeveloped land, which are valued as ecological, scenic, economic and recreational assets
- Strain the City's transportation network, particularly if it results in increased traffic volume on roads and at intersections not designed to accommodate the increased volume

Residential development in outlying areas may result in homeowners and developers calling upon the City to extend services into areas that are currently unserved. These services include road maintenance, school buses, water and sewer lines, and emergency services. Haphazard and scattered residential development in traditionally remote, rural areas may require City services to be supplied inefficiently. The cost of that inefficiency will be borne by all City taxpayers.

Lebanon's fields and forests are a critical asset, providing clean air and water, wildlife habitat, recreational opportunities, and aesthetic and economic benefits to the City. For the time being, Lebanon residents enjoy a significant amount of open space, but because of our role as a regional center, the development pressure that is gradually transforming open space into building lots will undoubtedly continue. While this conversion may be inevitable, the City should take proactive measures to ensure that the detrimental impact of such development is minimized and that important open spaces are conserved, using a variety of voluntary measures, incentives, and programs for willing landowners.

2 | D-1c **Mixed-Use Centers.** The concept of planning for mixed-use centers is a Smart Growth principle. Certain areas of Lebanon have existing patterns of residential development that are suitable, depending on future needs, for a more compact, dense and mixed-use development pattern, but at a scale and intensity in keeping with traditional New England village centers. This pattern can be described as nodal development, which reduces reliance on automobiles and consumes less land for various activities, rather than sprawl, which is auto-dependent and land consumptive.

Creating mixed-use centers will involve determining appropriate development standards and establishing the types of uses that are compatible with this designation (such as convenience stores and public meeting places, especially with existing nearby uses such as residential neighborhoods). Spatial, form-based standards will be an important component, as some current zoning criteria would not allow contemporary construction of a traditional village center.

2 | D-1d **Industrial Development.** The City should support sustainable growth of light industries that improve worker pay levels and long-term job stability. Although it does not appear that additional land currently is needed for industrial or commercial uses, the City should evaluate other zoning classifications to determine their appropriateness – for example, commercially-zoned areas considered for their suitability for industrial use. Those areas currently zoned light industrial, but unable to support development, should be rezoned for more appropriate use.

2 | D-1e **Housing.** Housing in Lebanon is fairly diverse and the zoning ordinance allocates significant area for most forms of housing. Natural constraints limit the amount of land that is truly available, however, so careful planning is needed. Lebanon should allow for carefully coordinated development of new housing that would support a diverse population and provide homes for people at all stages of life. That goal needs to be balanced with sensitivity to the limits of current City services, neighborhood character, infrastructure and tax structure, when making decisions regarding new development in recognition of the City's "Residents-First" policy.

Lebanon should continue to plan for a diversity of housing including:

- **Single-Family Housing.** Areas where single-family housing can be developed should be reviewed to determine specific limitations before development occurs. One objective should be to retain the character of current single-family housing neighborhoods, by limiting vehicular through-traffic and promoting access to green space and recreational facilities. Another should be to identify the lands most suitable for future development where infrastructure exists or can be reasonably extended, in accordance with the future land use map provided later in this chapter and the natural resource goals of this plan. It is also recommended that new housing be located close to urban centers and infrastructure in order to positively contribute to existing neighborhoods.



key points | future challenges & opportunities

- Lebanon's future land use policies should promote redevelopment and infill within our core developed areas, and discourage large-scale development in outlying rural areas.
- We should encourage mixed-use and compact forms of development, while continuing to offer the diversity of housing options and locations for new/expanding light industries necessary to maintain our role as a regional center.
- Recognizing that poorly planned development has the potential to negatively affect public services, infrastructure, taxes, open space, natural resources, historic resources, and community character, future land use policies need to be carefully crafted to avoid, minimize and mitigate any undesirable impacts as the City continues to grow.
- Due to their unique character and development pattern, different parts of the City present different challenges and opportunities. Our land use policies and regulations should respond to the specific needs and issues of the City's neighborhoods and areas.
- Lebanon can use a variety of planning tools to conserve open land and greenspace, protect natural resources, reduce the undesirable impacts of new development, and improve the development review process.
- This plan includes a future land use map that sets forth a general vision for how the City should grow and develop over time.



emerson gardens

- **Manufactured Homes and Parks.** Manufactured homes remain an important option for affordable detached housing in Lebanon. Within the next five years, the City should systematically assess the need for additional manufactured housing. If this assessment indicates a significant need, innovative site planning and/or zoning changes should be created to ensure that attractive and functional parks are developed. It is also recommended that new manufactured-housing parks be located in close proximity to City services and infrastructure.
- **Multi-Family Housing.** Planning for additional multi-family housing should continue based on anticipated future need. Logically, new multi-family housing should be located where infrastructure and services already exist to decrease the expense of extending infrastructure and services. At the same time, development of new multi-family units should take into consideration the character of existing neighborhoods nearby.

Lebanon's role as a regional center also is significant to the local housing market and rate of residential development as continued growth of area businesses and institutions is connected to the availability and affordability of housing for new workers. The City should work with area employers and surrounding communities in the region to develop an initiative for workforce housing to help meet the current and future need to support anticipated economic expansion of the region.

Lebanon is fortunate to have vibrant neighborhoods that possess distinct architectural styles and a friendly, sociable character. Opportunities for appropriate infill and increased density might be considered within existing neighborhoods. Examples include conversion of a single-family home to a duplex or multi-family dwelling, creation of accessory dwelling units, and allowing a second principal structure of limited size on a residential lot, such as an apartment in or above a detached garage. Such dwellings place little additional demand on City services and infrastructure, can help offset the costs of home ownership, and accommodate those not able or wanting to own and maintain a single-family house.

All new housing in older established neighborhoods should be compatible with the character of the neighborhood. Similarly, new housing in rural neighborhoods should be compatible with rural settings and should preserve open/green space, existing farms, prime agricultural and forestry lands, as well as other natural and cultural features. Although the City may not wish to mandate, architectural design standards, as well as form-based guidelines and incentives, could be created to help developers design projects that are sensitive to our local context.

- 2 | D-1f **Public Services and Infrastructure.** As Lebanon grows, demand for public services and infrastructure will increase, straining the municipal budget and, ultimately, the ability of City residents to afford living here. Demand for services will depend on municipal land use policies and build-out limits for the City. Directing development toward existing built up areas where municipal services are available can significantly reduce the impact of future growth. This development can take the form of redevelopment of existing sites, infill, and/or gradual expansion on the periphery of core developed areas.

Lebanon's future land use policies will both affect and be influenced by the following public services and infrastructure:

- **Schools.** Perhaps the greatest impact of residential development is on the school system. The City should work with the School District to identify suitable sites and undertake capital planning to facilitate land banking and construction of future school facilities with the goal of locating schools within core developed areas. Locating schools closer to the residential neighborhoods where students live will also allow more children to walk or bike to school, reduce school transportation costs and traffic congestion, and improve public health.
- **Government Facilities.** The City should strive to retain its administrative functions within its centers. At this time, City Hall contains most municipal functions, which helps to maintain the vitality of downtown Lebanon. With the closing of some public school buildings, the City should work with the School District to investigate appropriate re-use, including space for City government.
- **Water and Sewer.** Current City water and wastewater business plans highlight that demand is limited by the existing available capacity of both facilities. One means of limiting the demand on water supply and wastewater treatment systems will be to establish an urban services boundary, beyond which such utilities will not be extended until infill has taken place. The establishment of such a limitation will permit the City to focus development in a more concentrated area, rather than facilitating its spread into outlying areas. This focus will serve two purposes: it will reduce the capital and operating costs of the systems and help preserve the rural character of the surrounding countryside by not permitting dense development there.
- **Emergency Services.** Lebanon should conduct an in-depth study of emergency services (police, fire, ambulance) to determine the effect of development on various departments' abilities to respond to emergencies adequately and cost-effectively. The results of such a study will allow the City to guide amendment of planning regulations (site plan review, subdivision review, etc.) to reflect the City's goals for growth and provide the Planning Board with a basis for decision-making regarding development applications. Conversely, the study could also identify shortcomings in emergency service facilities that could be overcome with impact fees, capital projects, and other means.
- **Roadways.** The City's roadway system will be affected by widespread development. The cost of maintaining and periodically rebuilding roads is enormous. Lebanon can reduce this burden somewhat by encouraging development close to existing City centers to minimize maintenance requirements and promote pedestrian traffic and transit use, thereby reducing the number of vehicles on the roads. It can also encourage cluster, conservation, or open space design subdivisions, which generally require less amount of road per housing unit.
- **Class VI Roads (Unmaintained Public Rights-of-Way).** The City should continue to examine the potential impact of development along its estimated 10 miles of Class VI roads and should establish a policy governing land uses along them. Following the Class VI Roads Advisory Committee's completion of the Class VI Roads inventory, the City Council should continue to determine whether certain roads are suitable for reestablishment as Class V roads or are better suited for designation as Class A recreational trails. Alternatively, some Class VI roads could be discontinued and abandoned, while others remain as Class VI roads.

- **Recreation Facilities and Bicycle-Pedestrian Ways.** Upgrading and increasing recreational facilities such as parks, green spaces, and walk-bikeways will improve public health and enhance the character of existing centers. The concept of adjoining green space and opportunities to connect paths between neighborhoods and commercial areas was repeatedly recommended during the master planning process. A network of walk-bikeways will be a major asset to the City and provide some relief for traffic congestion by creating alternative transportation options. The routes should be planned and constructed in concert with current and future development, open space, and existing recreational facilities. Land should be banked or purchased for this use now, before it is consumed for other uses. This work should be coordinated with current and future updated recreation and pedestrian/bicycle master plans, as well as the Natural Resource Inventory, and should integrate plans of neighboring towns.
- **Telecommunications Facilities.** While provided by private companies, access to state-of-the-art telecommunications, such as broadband, has become an essential public service demanded by residents and businesses. The City recognizes the need to construct telecommunication facilities, notably personal wireless service (cellular) facilities, but such facilities must have the least possible intrusive impact on the natural scenery of the City and character of neighborhoods. Mounting antennas on existing structures and co-location of facilities is strongly encouraged and effective camouflage is expected. Visually obtrusive designs are inappropriate and unacceptable. Because of rapid proliferation of these facilities, the Planning Board should develop appropriate zoning and site plan standards for the regulation of such facilities.

2 | D-1g **Open Space.** The City should develop an open space plan that includes recommendations for use of City-owned parcels, priorities for acquiring privately-held land from willing sellers, incentives for private landowners to voluntarily place conservation easements on their land, and allocation of the City's conservation fund (into which we now place 100% of the Land Use Change Tax). A main goal of the plan will be to develop an interconnected network of green spaces, which would benefit both wildlife and City residents. Such a network could, for instance, directly link built up urban areas with public open space and allow wildlife to move between larger tracts of undeveloped land. A concurrent goal of the plan should be to maximize the size of connected open space areas and prevent further fragmentation of the landscape.

2 | D-1h **Natural Resources.** Chapter 5 of this plan sets forth the City's goals related to protection of natural resources. The following two natural resource protection issues are examples that are strongly linked to future land use policies:

- **Mascoma River.** The Mascoma River should be protected and restored to its natural state, as much as possible, to ensure that it continues to serve a vital role in the City. Future land use planning should try to visually highlight the river and ensure its enhancement.
- **Wetlands.** Wetlands are vital to protecting water supply and wildlife habitat, as well as the community from floods. The City should adopt a variable wetland buffer based on wetland functions and values and designate prime wetlands for special protection. The City should legally designate prime wetlands for special protection from encroachment by development as recommended by the NRI report, *Natural Lebanon*.

2 | D-1i **Historical Resources.** Many of Lebanon's most valuable historical resources are located close to or in our most densely developed areas. As the City grows, there will be land use changes within and adjacent to existing developed centers. Care should be taken to protect historic resources within these centers. The existing downtown historic district should be evaluated for expansion to include the area south of Bank Street and east of School Street. The creation of an historic district in West Lebanon should be studied with its core being the Maple Street area.

2 | D-1j **City Entry Corridors and Gateways.** Lebanon's entry ways could be improved and preserved by creating landscaping standards and planning for aesthetically-pleasing entry corridors at I-89, Route 10, Route 120, Route 4, and Route 12A. Managing further development in the immediate vicinity of interchanges on I-89, and directing such development to other areas, such as the CBDs, will help maintain the scenic appearance of the interstate corridor and will benefit downtown economies. Planned development including conservation, open space, and green areas in concert, not in conflict, with rural character will preserve and enhance Lebanon's appeal and quality of life. These goals can be promoted by developing specific scenic corridors in the City, which might take the form of overlay districts in the zoning ordinance. Such districts will require the creation of standards that encourage development consistent with residents' desire to maintain scenic beauty.

2 | D-2 **Land Use Planning Areas**

2 | D-2a **Route 12A.** Many of the original commercial buildings in this corridor were set back a considerable distance from the roadway, leaving the highway frontage available for infill development. The City should develop standards to require new construction and redevelopment to be built close to the highway right-of-way, to give the area the appearance of a downtown area and reduce the visual impact of parking lots.

Significant measures are being undertaken to provide safe pedestrian access. Although many people will still use vehicles, without adequate pedestrian facilities there is no alternative. At the same time that such approaches are considered, the City should re-evaluate its landscaping standards and establish criteria for building orientations and the location of parking lots. The purpose of these standards should be to promote development that is aesthetically pleasing yet functional and cost-effective.

On a broader scale, the City should conduct a land use study of the Route 12A commercial area to identify better parking configurations and highway traffic circulation. Similar analyses should be conducted for the Miracle Mile and Mechanic Street. These studies could also evaluate the appropriateness of zoning boundaries, not for the purpose of expansion, but to adjust zones to reflect existing land uses and their desired scope.

2 | D-2b **Route 12A from Exit 20 to Downtown West Lebanon.** The West Lebanon CBD needs to maintain a significant buffer from the commercial areas of Route 12A. The current mixed residential and professional Office neighborhood serves as an effective buffer and should not convert to nonresidential uses. Restricting additional nonresidential uses will also help protect the aquifer located in this area, as an increase in certain uses could contaminate this potential backup municipal water supply.

2 | D-2c **West Lebanon and Lebanon Central Business Districts.** Although there is little vacant land in the central business districts (CBDs), they represent a significant potential source for new economic development. Existing infrastructure, available services, and familiarity of established clientele provide a cost-effective environ-



Route 12A

Photo by: Braxton Freeman, Aerial Design

ment for new and expanding businesses, especially compared with undeveloped areas where services are not available. Investing in upgraded infrastructure in the CBDs will enhance their ability to attract and retain businesses and residents. Particular attention should be directed to improving parking and transportation access to these areas.

Because significant numbers of under-utilized existing sites are available, it is not appropriate to rezone additional land as CBD at this time. The addition of new property will compete with continued build out of existing commercially-zoned properties. Incentives should be created for businesses to locate or redevelop in the CBDs. In addition, the CBDs should be protected from competing development on their periphery by maintaining a distinct residential zone or open space between the CBDs and other commercial zones.

In West Lebanon, the redevelopment of the Westboro Rail Yard will require careful study and planning as it presents both significant opportunities and potential conflicts with other uses in the CBD.

In both CBDs, continued and expanded mixed-use structures should be encouraged, combining commercial storefronts with upper story Offices and residential units and facilitating compatible uses on adjacent properties.

Existing residential neighborhoods near the two CBDs are among the highest quality and most attractive in the City. While recent major housing developments have been aimed at more affluent households, downtown areas provide much of the City's affordable housing stock, supplying shelter for residents of all ages who have less buying power. Residents of these areas contribute significantly to the financial well being of businesses located within the City's CBDs, by shopping there and utilizing their services.

In addition, many of the City's historic buildings are located in these neighborhoods. Appropriate housing development in these areas can include mixed uses, such as upper-story apartments above retail storefronts. It is paramount that these neighborhoods be protected by the zoning ordinance from out-of-character, incompatible or unattractive infill. The City should strive to ensure that new housing development in these areas is linked to public open spaces (including pocket parks) and is within walking distance of schools.

- 2 | D-2d **West Lebanon (Westboro) Rail Yard.** Freight-train service in the Westboro Rail Yard has raised questions of potential conflict between an active rail yard and nearby residential and commercial areas. While the community of West Lebanon was once dependent on the railroad for its economic vitality, the long absence of active rail service largely reoriented the area to another economy. Resumption of rail traffic has already taken place. Operations in the rail yard should account for the needs of residents and business owners in the area, as well as the widely recognized benefits of using railroad rights-of-way as bicycle-pedestrian trails. In particular, the people of West Lebanon have long called for recreation facilities and revitalization of downtown uses that serve the surrounding neighborhoods. Efforts should be made to preserve as many of the historic attributes as possible at the southern end of this property. A buffer should be established to protect existing residential and commercial properties from industrial rail uses. The City should continue to keep a critical eye on this area as railroad operations evolve. Potential mixed-use redevelopment should include public parking, bus connections, and reopening of pedestrian access to the rail yard.
- 2 | D-2e **Elm Street West.** In West Lebanon, Elm Street West should be closed to through traffic and trucks routed via the potentially relocated Glen Road away from West Lebanon. The following issues will be crucial consider-

ations to protect residential areas from undue negative impacts: visual and sound buffering, traffic, light pollution, and air quality.

- 2 | D-2f **North Main Street.** A 38-acre area to the north of the existing West Lebanon Central Business District, located between the Connecticut River and North Main Street, was re-zoned in 2010, and subsequently the Planning Board approved the mixed-use River Park project for the area in 2011, which include a life sciences Office and research space, service retail stores, single-family homes and rental housing. Build-out of this area will represent a significant change and opportunity for West Lebanon.
- 2 | D-2g **Route 10 North - The Falls to Wilder Road.** Route 10 is a major artery into West Lebanon and its appearance should be considered with respect to zoning changes. Setbacks and green buffers are advised to preserve the appearance and integrity of surrounding natural areas. The City should establish this portion of Route 10 as a scenic corridor with appropriate protection from adverse impacts of development.
- 2 | D-2h **Route 10 North - Sachem Village.** Citizen input conveyed that this area should continue to function as a mixed-use neighborhood with an emphasis towards maintaining a residential neighborhood with small-scale non-residential uses that primarily support or blend within the neighborhood.
- 2 | D-2i **Dartmouth College-Dartmouth-Hitchcock Medical Center-Landmark Lands.** The area bounded roughly by Lahaye Drive, Mount Support Road, Old Pine Tree Cemetery Road, and West Lebanon-Route 10 has significant sections of wetlands, scenic ridgelines, steep slopes, and critical habitat. These features should be carefully mapped by property owners and evaluated by the City before any zoning changes or development proposals are considered.

The City should adopt policies to manage the anticipated growth of the Medical Center that minimize or avoid adverse impacts to the natural environment, the roadway network, and through-traffic impacts in neighborhoods. Planned development should minimize or avoid adverse impacts to wetlands, steep slopes, ridgelines, open space and wildlife corridors in this area.

Areas nearest to the Medical Center may be most suitable for high tech, light industry, professional activities, and housing related to the Medical Center. Commercial development should be discouraged except as a small component of a planned unit development. Residential uses should be integrated into any future development plans. The southern portion of this area should be protected from development.

- 2 | D-2j **Heater Road-Route 120-Evans Drive-Hanover Street.** For the Heater Road area, the general recommendation is to determine the appropriate level and type of future development. The area surrounding the Hanover Street School and Lebanon High School would be appropriate for mixed-use development, including small-scale commercial, light industrial, Office, and residential uses. Because of the proximity to schools and residential areas, surrounding wetlands, and difficult access for traffic from Route 120 onto Evans Drive, development must meet well-defined performance standards for traffic, hours of operation, impervious surface, and parking. A study of the entire Route 120 corridor is needed to address traffic patterns, land uses, and aesthetic concerns. The City supports the NHDOT's position that no further curb cuts should be granted on Route 120 north of Exit 18. The entry corridor from Exit 18 to Hanover Street should be landscaped by the state to reduce the current expanse of impervious pavement.



DHMC and Route 120 development
1992 (above) and 2009 (below)

- 2 | D-2k **Mount Support Road Corridor.** Along with Route 120, this area connects Lebanon’s downtown core with the medical center core. Recent developments have added approximately 300 residential units to this area, with subsequent service and roadway upgrades to follow. Because of its close proximity to the downtown and a major employment center, housing is well suited for this area. The northern portion of this corridor could also be suitable for mixed non-residential development that supports the existing Medical Center. Future development proposals should carefully assess impacts on adjacent neighborhoods and schools and avoid adverse impacts on the natural resources that surround this corridor. Existing wildlife corridors that connect the Landmark Lands and Mount Support/Rix Ledges areas should be identified and preserved.

- 2 | D-2l **Mechanic Street.** The area between Exit 19 and South Park Street is currently a mix of residential and general commercial uses, including smaller apartment buildings, retail, automotive, and assorted service uses. Future planning and development within this area should strive to maintain a balance between residential and non-residential uses, including assessing and providing as warranted additional amenities to support residential use, such as pedestrian and bike resources. With the high visibility of this area as an interstate interchange, as well as a gateway to Lebanon center, design guidelines, such as landscaping and sign standards, should be created and applied to the corridor.

- 2 | D-2m **Farnum Hill-Carter Golf Course.** The Carter Golf Course is an asset for the City and should be preserved. The Farnum Hill areas to the south and west of the golf course have significant wetlands, steep slopes, critical wild- life habitat, and moderate and severe soil limitations that make it incapable of supporting dense development. Because of these constraints, this area would be appropriate for development proposals that use conservation design principles, which will allow for more appropriate development, compatible with surrounding residential and conservation uses.

- 2 | D-2n **Airport-Business Park Activity.** There remains capacity for expansion of the airport and Business Park. Vehicular access to the airport and surrounding industrial park should be studied with the goal of minimizing conflict with traffic in the Route 12A corridor. Lighting in the vicinity of the airport should be designed to minimize adverse impacts. Traffic congestion and protection of residential areas and scenic roadways east of the airport should be of primary concern for any changes. Also, development must be consistent with planned roadway upgrades.

There are ongoing discussions about Phases II and III of the Airport Business Park; these areas may be re-designated as conservation areas or remain industrial. Careful study is necessary before changes are made, with particular attention paid to the intersection of Poverty Lane and Route 4. The City is currently developing an updated Airport Master Plan, which is intended to synchronize with this plan.

- 2 | D-2o **Exit 17.** The vision expressed by residents is for this area to maintain its current ratio of non-residential to residential development, including maintaining the existing moderate scale of existing non-residential development. The proximity of the City’s drinking water intake and environmentally sensitive resources (e.g. Stoney Brook and Mascoma River, existing aquifer), the lack of existing sewer infrastructure, the preservation of the existing residential neighborhood characteristics, and the desire to not promote retail uses at the Exit 17 interchange, were the predominant rationale expressed during master plan discussions supporting this recommendation.

2 | D-2p **Other Rural Areas.** Extensive portions of the City remain relatively undeveloped and contribute to the character of Lebanon as a small City in a rural setting. Protecting these lands should be encouraged through appropriate means that respect owners' property rights, such as conservation design, purchase of development rights, conservation easements, transfer of development rights, and private agreements to conserve land. The City should conserve areas of high value for agriculture and forestry, areas that are important to maintain the quality of the public drinking water supply, areas that are culturally important, and areas that provide important wildlife habitat, or are scenic.

2 | D-3 **Planning Tools**

This section presents a summary of several key planning tools the City can use to implement the land use planning goals set forth in this plan.

2 | D-3a **Data Collection and Assessment.** To understand the cumulative impacts of development, ongoing collection and monitoring of data is essential. The City administration is on schedule to conduct photographic flyovers of the entire City every five years. This will provide valuable information on the scale, type, and impact of development, as well as on the extent and quality of natural resources. When updated regularly, the information will be a useful tool to assess the type, location and impact of development occurring in the City over time.

In addition, accurate and accessible maps are essential tools for planning and for the stewardship of natural resources. The City has been consolidating map information within its Geographic Information Systems (GIS) library. This project has numerous benefits including making this information accessible to Lebanon citizens, especially those who serve on boards that make land use decisions.

The City should continue to prioritize the collection and updating of accurate GIS data, as well as consolidate additional map and information resources, improve what is currently within the GIS library, and develop additional layers of information. Furthermore, those in City government should continue to be informed about data that are available to assist the decision-making process. City staff should continue to facilitate the efficient delivery of this information.

2 | D-3b **Cost of Community Services Study.** The City should conduct a new community services cost-study to help assess the fiscal impact of various types of development in different locations. A common conclusion of similar studies across New Hampshire is that commercial and industrial uses do not contribute more value to the City's tax base, on a net basis, than does open space, and that residential development is considerably more expensive. A community services cost-analysis could also serve as a basis for calculating impact fees, which the Planning Board is required to reevaluate annually for collection and spending on scheduled capital improvements.

2 | D-3c **Natural Resource Inventory.** The City's recently completed Natural Resource Inventory must be an integral part of the review of all development proposals. The City should use the current natural resource map in its review of development proposals to evaluate and mitigate potential negative impacts, streamline permit reviews, and conserve valuable resources more effectively.

2 | D-3d **Conservation Design.** The City should require open space or conservation design for all subdivisions larger than a specified size (acreage or number of lots), including major subdivisions. Conservation design entails identifying site features and resources that are worthy of protection, then seeking to design development around

those features without disturbing them. This technique could be applied to wetlands of particular significance, archeological sites, a particular habitat, or a scenic vista. The benefits of conservation design are that the City and the property owner, together, are able to protect attributes of the land that are important to conserve, and the developer is able to gain approval for a development whose value will be augmented by protected features.

- 2 | D-3e **Transfer of Development Rights.** Transfer of development rights (TDR) is a planning technique that systematically directs growth away from environmentally-sensitive or culturally important areas. TDR requires identification of sending properties that could give up development rights for the purpose of increasing the development capacity of receiving land parcels, which require prior identification. This method relies on property owners who are willing to sell rights to develop their properties. In exchange for selling development rights at fair market value, the owner of the sending property would grant the City a permanent conservation easement, restricting future development of that property. In general, the City should facilitate development that encourages conservation and green space by increasing density incentives or other methods to encourage development in areas most appropriate for building.
- 2 | D-3f **Lot Size Averaging.** Lot size averaging allows for a variety of tract sizes and allows the landowner great flexibility in determining how to subdivide his/her property while achieving local master plan goals of open space and increased density. The City should explore whether this tool is applicable and/or desirable for the community. Hartford, Vermont is one of many communities that are utilizing this tool.
- 2 | D-3g **Ridgeline Protection.** Deforestation or poorly-sited development on Lebanon's ridges disturbs wildlife habitat and reduces the rural beauty of the area. Creation of a ridgeline overlay district will serve to manage deforestation of these areas and limit activities that compromise their natural habitat value and appearance. The emphasis should be on using best management practices to minimize inappropriate clear-cutting of forests on large tracts of land or development within large open fields.
- 2 | D-3h **Water Resources Management Plan.** The development and adoption of a water resources management plan will guide the development of regulatory and non-regulatory tools to protect Lebanon's surface and ground waters, and will help locate and protect additional water supplies for future public need. The City should coordinate its efforts internally, among City departments and land use boards, as well as with towns that share the Mascoma River and Connecticut River watersheds
- 2 | D-3i **Aquifer Overlay District.** The City relies upon the Mascoma River exclusively as its source of public water. Contamination of the river will create a major emergency unless the City has an available alternative. The need to find an additional water source(s) and protect the existing supply must be of highest priority for the City. A potential municipal well site was identified nearly a decade ago and deserves follow-up study.

Aquifers are especially sensitive to contamination and difficult to clean. Appropriate use restrictions in an aquifer overlay district will help guard against contamination, as will local shoreland development and use standards.
- 2 | D-3j **Shoreland Protection District.** To maintain and improve water quality, lands along water bodies must be protected against spill or release of hazardous or toxic substances. The adoption of a local shoreland protection ordinance, over and above the state Comprehensive Shoreland Protection Act, using appropriate development and use standards, such as building setbacks and vegetated buffers, will facilitate this process. In addition, the

Connecticut River Corridor Management Plan of the Connecticut River Joint Commission lists a series of recommendations for communities, landowners, and other stakeholders to implement to protect this vital resource.

2 | D-3k **Development Review and Enforcement Process.** The development review and enforcement process provides an opportunity to examine development proposals to ensure that they have been thoughtfully designed to avoid, minimize or mitigate impacts. To better serve this purpose, this plan:

- **Lighting.** Recommends more consistent and stricter enforcement of current lighting requirements to encourage compatible, attractive development, conserve energy, and diminish the potential impact of sky-glow and glare. Developed areas can be a substantial source of unwanted light in the night sky. It is important for human enjoyment, energy efficiency, comfort, and protection of habitat that the City finds a balance between light levels required for safety and those that minimize any glow in the night sky impacting humans and wildlife. Lighting should be designed to minimize adverse impacts on surrounding and nearby properties.
- **Noise.** Recognizes that the airport and major roadways are the primary sources of noise in the City, although heavy industry also contributes. Methods to reduce road noise should be integral to building and rehabilitation of Lebanon’s roadways, including landscaping, terrain modification, and traffic-calming techniques to reduce vehicular speed. The airport overlay district should be reviewed to ensure that uses within the adjacent industrial park will not amplify current noise disturbances.
- **Landscaping, Buffers and Greenspace.** Recommends more consistent and stricter enforcement of current landscaping requirements to encourage compatible, attractive development. Ideally, any major new development would use conservation design principles to protect sensitive areas, while providing developable areas that meet reasonable financial goals of property owners and developers. For all development, the use of buffers, integrated open space, and respect for environmental constraints should be required.
- **Site Disturbance.** Recommends that standards restricting site disturbance during construction be adopted to help preserve the ecological integrity, water quality and visual appearance of the landscape.

This plan also makes the following recommendations regarding the administration of the City’s development review and enforcement process :

- **Internal Communication.** A problem common to the planning process is poor communication among land use boards and interested municipal groups. This problem has the potential to result in contradictory conclusions and a frustrating, duplicative process for an applicant. A possible solution is to arrange regular joint meetings of different boards, or their chairs, to relate concerns over particular developments. This will also serve to educate board members about the roles and duties of other land use boards. Alternatively, regular reporting of the Planning Board agenda could serve this function, as most other boards also have a Planning Board representative serving on them.
- **External Communication.** Another important goal is to improve communication with the public by continued support of the public-access cable television channel. Many interested people are unable to attend lengthy and frequent meetings, but might be inclined to watch public proceedings on cable. Regu-

lar communication between the Planning Board and the School Board or their representatives will help provide the Planning Board with important information on plans for school capital facilities or problems with particular areas and/or development applications.

2 | D-4 Future Land Use Map

The Future Land Use Map is intended to provide a broad overview of how land should be used in the City – which lands should be developed for which uses, how densely or intensely these lands should be developed, and what areas should be left as open space. The map provides graphic guidance for implementing the text of this chapter. Many citizens and landowners in Lebanon, representing a broad cross-section of the City, participated in the process of creating the map.

The Future Land Use Map divides the City into 12 different land use categories:

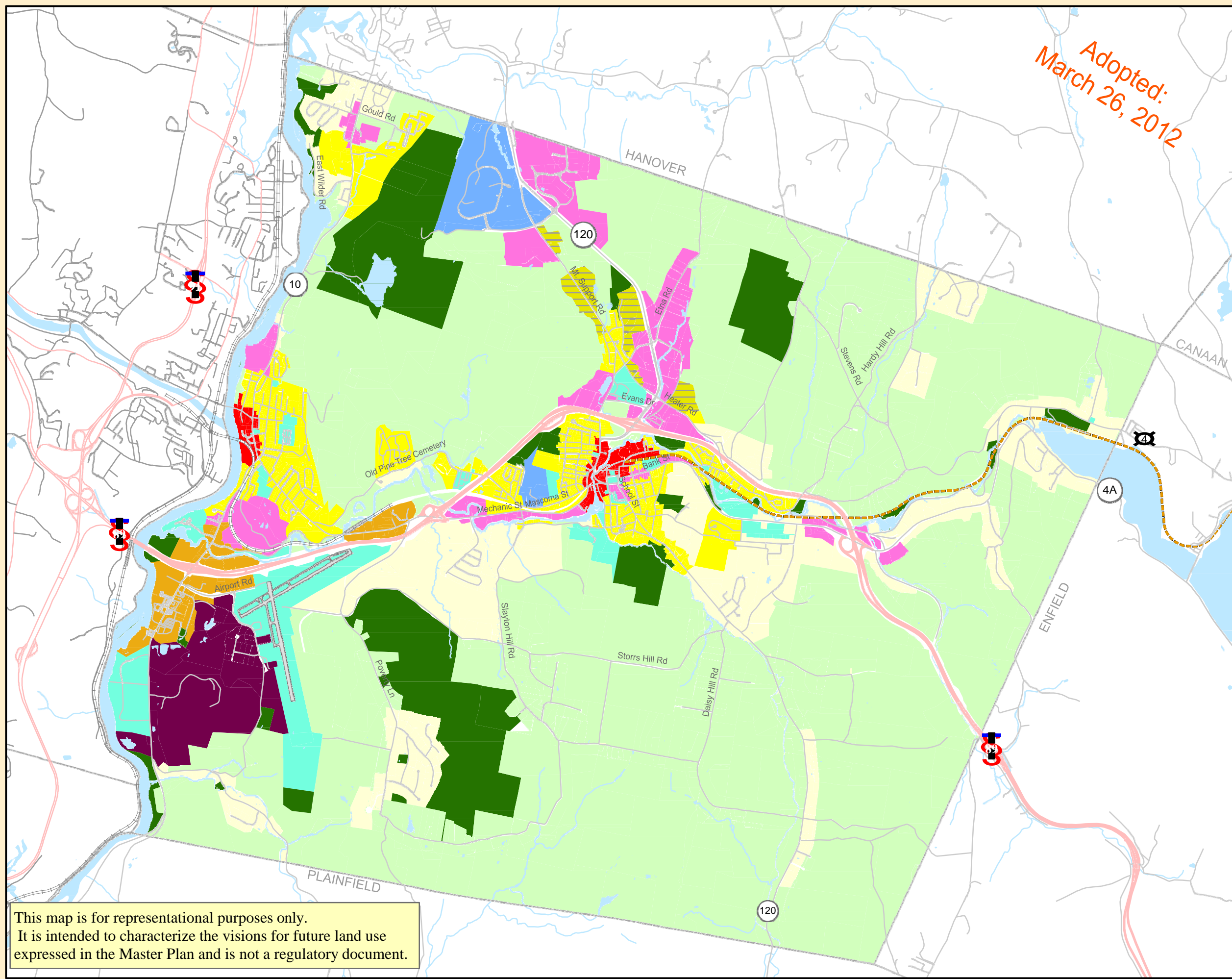
- **Rural Density.** Rural areas with low-density residential uses. This classification contains much of the sensitive land in the City, such as hydric soils, steep slopes, and ridgelines.
- **Residential Low Density.** Semi-rural residential areas similar to Blueberry Hill or Foliage View neighborhoods.
- **Residential Medium Density.** Town or village residential areas, with a density similar to areas such as Green Street in Lebanon or Maple Street in West Lebanon.
- **Residential High Density.** Areas of the City with appropriate infrastructure to support infill, redevelopment, or new development at higher densities similar to Nature Walk.
- **General Commercial.** Prime commercial areas, roughly analogous to the General Commercial classification in the current zoning ordinance.
- **Central Business District.** The downtown business districts in Lebanon and West Lebanon.
- **Industrial.** Areas for heavy industry.
- **Conservation Land.** Major publicly-owned parcels that have been conserved by easement, purchase, and other voluntary methods.
- **Public Institutions.** Publicly-owned properties such as schools, the airport, or other City facilities.
- **Medical Office.** Areas including the Dartmouth-Hitchcock Medical Center and Alice Peck Day Memorial Hospital, allowing for medically-related services appropriate for the surrounding land uses.
- **Mixed Use.** Areas for compatible nonresidential and residential facilities or developments. This includes developments of various sizes and uses depending on the surrounding neighborhood characteristics.



MASTER PLAN

2030 FUTURE LAND USE

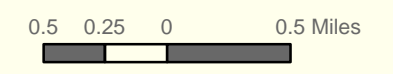
Adopted:
March 26, 2012



- Rural
- Residential - Low
- Residential - Med
- Residential - High
- General Commercial
- Mixed Use
- Industrial
- Medical Office
- Central Business District
- Public Institution
- Conservation Land

This map is for representational purposes only.
It is intended to characterize the visions for future land use
expressed in the Master Plan and is not a regulatory document.

Data Sources:
Land Use - Lebanon Planning



Map created by LebGIS, March, 2012
Map printed on 03/26/12

OUTCOME 1 Acknowledge role as regional center while preserving small-town character and quality of life.

STRATEGIES

- 1 Promote balanced land use that preserves the City's outlying rural character and directs development toward its urban and densely settled residential cores.
- 2 Preserve and enhance Lebanon's appeal, quality of life and rural character by encouraging planned development that includes conservation, open space, and green areas.
- 3 Balance development of new housing that will support a diverse population within the limits of current City services, neighborhood character, infrastructure and tax structure.
- 4 Assess the impact of development proposals on adjacent neighborhoods and schools.
- 5 Ensure that development of new multi-family units and conversion of single-family homes into multi-family homes takes into consideration the character of existing neighborhoods.
- 6 Protect residential areas from undue negative impacts including visual and sound buffering, traffic, light pollution and air quality.
- 7 Support efforts to enhance the character of existing centers and improve public health by upgrading and increasing recreational facilities such as parks, green spaces, and walk-bikeways.
- 8 Support sustainable growth of light industries that improve worker pay levels and long-term job stability.
- 9 Collaborate with employers, organizations and communities in the region on workforce housing initiatives as needed to sustain economic growth.
- 10 Support the position of the NHDOT that no further curb cuts should be granted on Route 120 north of Exit 18.
- 11 Encourage the state to reduce the expanse of impervious pavement and landscape the entry corridor from Exit 18 to Hanover Street.
- 12 Encourage the railroad to consider the needs of residents and business owners in the vicinity of the Westboro railyard, as well as the widely recognized benefits of using railroad rights-of-way as bicycle-pedestrian trails.
- 13 Keep a critical eye on the area around the Westboro Rail Yard as railroad operations evolve.
- 14 Ensure that future development in the vicinity of the airport is consistent with planned roadway upgrades.
- 15 Address traffic congestion and protection of residential areas before making zoning changes in the vicinity of the airport.

ACTIONS

- 1 Develop a comprehensive urban design plan for Route 12A, Miracle Mile & Mechanic Street.
- 2 Establish landscaping standards and a plan for aesthetically-pleasing gateways and corridors at I-89, Route 10, Route 120, Route 4, and Route 12A.
- 3 Re-evaluate landscaping standards and establish criteria for building orientations and the location of parking lots to promote development that is aesthetically pleasing.
- 4 Close Elm Street West to through traffic in West Lebanon.
- 5 Evaluate options for a truck route to bypass West Lebanon including via Glen Road if relocated.
- 6 Establish a buffer to protect existing residential and commercial properties from industrial rail uses.
- 7 Study vehicular access to the airport & business park with the goal of minimizing conflict with traffic on Route 12A and with particular attention paid to the intersection of Poverty Lane and Route 4.
- 8 Require lighting near the airport to be designed to minimize adverse impacts on nearby properties.
- 9 Re-evaluate plans for Phase II & III of the Airport Business Park before making zoning changes.
- 10 Delineate specific scenic corridors to be protected by overlay districts that would include standards intended to maintain scenic beauty, and specifically consider the Route 10 corridor for such protection.
- 11 Update the 1999 Evaluation of Available Commercial/ Industrial Parcels for compatibility with natural constraints and make appropriate zoning changes, as warranted.
- 12 Enforce more consistently & strictly the City's current lighting requirements to encourage compatible, attractive development, conserve energy, & diminish the potential impact of sky-glow & glare.
- 13 Approve budgetary allocations for planning resources, consistent with the level of development activity in the City, as recommended by the Planning Division and Planning Board.
- 14 Perform a photographic fly over every 5 years, and make the aerial photos accessible to the public.
- 15 Continue to prioritize the collection and updating of accurate GIS data, consolidate additional map and information resources, improve the existing GIS library, and develop additional data layers.
- 16 Continue to inform those in City government about data that are available to assist the decision-making process and efficiently provide decision-makers with requested information.
- 17 Hold regular joint meetings of different boards, or their chairs, to facilitate internal communication.
- 18 Continue to use social media such as the public-access cable TV channel, blogs, e-newsletters, etc. to improve communication with the public.

OUTCOME 2 Promote smart growth by guiding new development to those areas of the City already served by public infrastructure.

STRATEGIES

- 1 Encourage new housing to be located close to urban centers and infrastructure and to positively contribute to existing neighborhoods.
- 2 Encourage development close to existing urban centers to minimize road construction and maintenance requirements, and to promote pedestrian traffic and transit use.
- 3 Invest in upgraded infrastructure, improved parking and transportation access in the central business districts to enhance their ability to attract and retain businesses and residents.

ACTIONS

- 1 Develop an urban services boundary for water and sewer.
- 2 Undertake a new cost-of-community-services study to demonstrate the relative value of open space in saving expenditures on municipal services.
- 3 Conduct an in-depth study of emergency services (police, fire, ambulance) to determine the effect of the type, rate and location of development on various departments' abilities to respond to emergencies adequately and cost-effectively.
- 4 Identify the lands most suitable for future residential development where infrastructure exists or can be reasonably extended, in accordance with this plan's future land use map and natural resource goals.
- 5 Conduct a land use study of the Route 12A, Miracle Mile and Mechanic Street commercial areas to identify better parking configurations and highway traffic circulation.
- 6 Conduct a study of the Route 120 corridor to address traffic patterns, land uses & aesthetic concerns.

OUTCOME 3 Define the City's core developed areas and focus growth in those areas through revitalization, redevelopment and infill.

STRATEGIES

- 1 Allow for appropriate infill and increased density within existing neighborhoods while preserving neighborhood character.
- 2 Protect the established residential neighborhoods around the central business districts neighborhoods from out-of-character, incompatible or unattractive infill.
- 3 Work with the School District to identify suitable sites and undertake capital planning to facilitate land banking and construction of future school facilities with the goal of locating schools within core developed areas.
- 4 Maintain City Hall as the primary location for City government and seek opportunities to find other locations in downtown Lebanon to accommodate future need for additional municipal office and storage space.
- 5 Support continued mixed-use development within the central business districts that combines commercial ground-level storefronts with upper-story offices and residential units.

ACTIONS

- 1 Identify neighborhoods that have the characteristics suitable as redevelopment areas or pods and assess whether zoning changes are needed to allow for infill or redevelopment.
- 2 Develop standards to require new construction and redevelopment along Route 12A to be built close to the highway right-of-way, to facilitate infill development, give the area the appearance of a downtown area and reduce the visual impact of parking lots.
- 3 Evaluate the need to adjust commercial zoning district boundaries to better reflect existing land uses and natural constraints, and to encourage infill or redevelopment of existing developed sites before developing on new sites.
- 4 Develop new and expanded mixed-use districts that encourage the co-location of compatible residential, professional, and commercial uses.
- 5 Explore incentives for businesses to locate or redevelop in the central business districts.
- 6 Maintain a distinct residential zone or open space between the central business districts and other commercial zones to protect the CBDs from competing development on their periphery.
- 7 Revise zoning for the mixed residential and professional office neighborhood in West Lebanon to discourage further conversion of residential to non-residential uses in order to main an effective buffer between the CBD and the commercial area on Route 12A, and to help protect the area's aquifer.

OUTCOME 3

Define the City's core developed areas and focus growth in those areas through revitalization, redevelopment and infill.

ACTIONS

Adopt policies to manage anticipated growth of the Medical Center without further degrading the environment and capacity of the road network, or increasing fragmentation of open space and the amount of through-traffic in neighborhoods.

8

Zone the area around the Medical center to encourage high-tech, light industry, professional activities and housing, discourage commercial development except as a small component of a planned unit development, and conserve the natural resources to the south.

9

Determine the appropriate level and type of future development in the Heater Road area.

OUTCOME 4

Recognize the value of the working lands and open space remaining in the City's outlying rural areas and seek to conserve the City's natural resources for future generations.

STRATEGIES

- 1 Support development of an interconnected network of green space throughout the City.
- 2 Support efforts to protect and restore the Mascoma River to its natural state, and to promote the river as a scenic and recreation asset.
- 3 Protect Stoney Brook, and the Mascoma River and its tributaries, which feed into or are a source of the City's public drinking water supply.
- 4 Protect the City's aquifers, which may serve as a future source of public drinking water.
- 5 Recognize that the need to find additional drinking water source(s) and protect the existing supply is of highest priority for the City.
- 6 Support the recommendations of the Connecticut River Corridor Management Plan.
- 7 Support the preservation of the Carter Golf Course as an open space and recreation resource for the City.
- 8 Encourage protection of outlying, undeveloped lands through means that respect owners' property rights, such as conservation design, purchase of development rights, conservation easements, transfer of development rights, and private agreements to conserve land.
- 9 Conserve areas of high value for agriculture and forestry, areas that are important to maintain the quality of the public drinking water supply, areas that are culturally important, and areas that provide important wildlife habitat, or are scenic.

ACTIONS

Develop an open space plan that sets priorities for acquiring or otherwise protecting privately-held land from willing sellers/owners, establishes incentives for landowners to voluntarily place conservation easements on their land, and includes recommendations on the use of City-owned parcels.

1

Develop and adopt a water resources management plan and coordinate planning efforts with other towns that share the Mascoma and Connecticut River watersheds.

2

Adopt an aquifer overlay district.

3

Adopt a variable wetland buffer based on wetland functions and values and designate prime wetlands for special protection.

4

Adopt a local shoreland protection ordinance.

5

Develop standards restricting site disturbance during construction.

6

Designate prime wetlands for special protection from encroachment by development as recommended by the Lebanon NRI report.

7

Adopt relevant new ordinances and revise existing ordinances to reflect protection of selected resources identified in the Lebanon NRI report.

8

Integrate the Lebanon Natural Resource Inventory into the review of all development proposals.

9

Use the current natural resource map in the review of development proposals to evaluate and mitigate potential negative impacts, streamline permit reviews, and conserve valuable resources more effectively.

10

Identify and protect existing wildlife corridors that extend across Route 120.

11

OUTCOME 4

Recognize the value of the working lands and open space remaining in the City's outlying rural areas and seek to conserve the City's natural resources for future generations.

ACTIONS

Require natural features such as wetlands, scenic ridgelines, steep slopes and critical habitat to be carefully mapped and evaluated before any zoning changes or major development proposals are considered for outlying rural lands.

12

Amend the zoning ordinance to discourage conventional, large-lot housing development by requiring conservation design and using density and other incentives to conserve more open space.

13

Explore whether lot size averaging would be applicable and/or desirable zoning tool for the rural areas of the City.

14

Adopt a ridgeline overlay district to manage deforestation and limit activities that compromise natural habitat value and rural beauty.

15

Investigate transfer of development rights programs that aim to facilitate the development of housing in targeted higher-density areas while preserving targeted rural areas.

16

3| Lebanon Central Business District

3|A Vision & Purpose

Downtown Lebanon shall continue to be a vibrant part of the community - a crossroads where residents and visitors work, meet, shop, learn, participate in local governance, and share in a good quality of life and a firm sense of community and belonging. The City of Lebanon seeks to promote and enhance downtown Lebanon as a vital business, social and recreational center of the community while preserving its historic “small-town” atmosphere.

3|B Issues & Priorities

3|B-1 Downtown Revitalization

The Lebanon Central Business District has numerous positive attributes that define this area as one of Lebanon’s greatest assets. However, the area remains in a process of transformation with a number of opportunities for improvement remaining. A coordinated planning effort involving the various stakeholders, articulating the scale, scope, and timing of proposed improvements should be a priority for the City.

3|C Existing Conditions & Trends

3|C-1 General Description

Downtown Lebanon is located near the geographic center of the City approached by Route 120, Route 4 and I-89. The Lebanon Central Business District (CBD) is characterized by a great variety of mixed land uses in a dense area at a core node of the City. The CBD is an official zoning district covering approximately 105 acres that roughly correspond to what is generally perceived as the core of “downtown Lebanon.”

Since the mid-1980s, there has been substantial new construction and renovation in downtown Lebanon representing millions of dollars in private investment. Significant renovations have included:

- Whipple and Pulsifer Blocks and Lebanon College in the former Woolworth Building on the Mall.
- Citizens Bank building.
- Mascoma Savings Bank building.
- 1 Court Street.
- The Courtyard Pavilion.
- The AVA Gallery and CCBA.
- Rivermill Complex just beyond the CBD.
- Lebanon Village Marketplace, which provides the residents of the CBD with a nearby grocery store.

key points | vision & purpose

- Enhance downtown’s role as a vibrant community center
- Preserve downtown’s historic, small-town character

key points | issues & priorities

- Continue revitalization of the Lebanon Central Business District



lebanon central business district and surrounding neighborhoods

Downtown Lebanon has become a desirable location for many professional Offices, including a large majority of the City’s law firms and many accounting, medical, insurance, real estate, financial services and marketing Offices. Numerous residences have been converted or renovated into Offices such as 8 South Park Street and the Carriage House, and a number of other residences along School and Bank Street. The loss of housing in the CBD resulting from these conversions has been offset by new residential development such as the 20-unit Spencer Square and the 160-unit Emerson Gardens Apartments.

Retailing in downtown Lebanon is scattered around the Mall and in individual sites on the main arteries in and out of downtown. Virtually all of the retail and service businesses are locally-owned and operated or part of a small regional group. Some retailers have experienced a high rate of turnover. The eating establishments in the Mall continue to thrive and serve as anchors for the CBD.

The Mall is evolving into a place of service and cultural activities, including Lebanon College, music and dance studios, the DHMC Women’s Center, and a Center for Healing Arts. Numerous social service agencies are located within the CBD. City government services continue to draw activity into the district. These services and cultural amenities are accessible to local residents without the need for an automobile. Proximity and concentration of services to surrounding residential neighborhoods and public transit allows more tasks and activities to be accomplished with significantly less vehicular use.

3|C-2 Surrounding Residential Neighborhoods

A significant percentage of the City’s residents live within walking distance of the downtown in one of the large residential neighborhoods that surround the Lebanon CBD including: Spencer Street area, the Young Street area, the Green Street area, and the Church Street area.

The proximity of residential neighborhoods to the CBD supports downtown vitality and increases residents’ quality of life. Neighborhood residents benefit from their proximity to the services and amenities within the CBD including the Carter Community CCBA, Senior Center, High School, Junior High School, elementary schools, and the pedestrian-oriented Colburn Park and Mall. Neighborhood residents create a customer base that many downtown businesses, particularly the small, local businesses, rely upon to remain profitable.

3|C-3 Downtown Design

Downtown Lebanon has many strengths and features that make it an attractive community center including the Colburn Park Historic District, the greatest concentration of pedestrian activity within the City, and the cultural and public service entities. However, there are aspects to the design of downtown Lebanon that discourage and inhibit its vitality.

There are no traffic lights within the CBD except for emergency vehicular and pedestrian use at the fire station. The circular flow around Colburn Park can be confusing, and there is a need to improve the design for safe vehicular, bicycle and pedestrian flow.

3 | C-4 Cultural, Recreational & Natural Resources

Existing cultural and recreational activities within the CBD contribute greatly to the vitality of the community. They generate activity in the downtown, complement commercial and business activities, and bring people together socially in the heart of the community. These activities are beneficial in providing social outlets and community meeting places, a sense of community and civic participation, intellectual and artistic stimulation, and economic support to the City.

Cultural, historic and recreational (also see Chapters 10 and 11 of this plan) assets within or within walking distance of the CBD include:

- The renovated 850-seat Lebanon Opera House, which offers a variety of musical performances sponsored by various organizations. The Opera North Company, which stages performances in the Opera House, recently relocated to Lebanon from Hanover and is housed in the Citizens Bank building.
- Festivals, concerts and farmers' market in Colburn Park.
- The Lebanon Public Library.
- The Colburn Park Historic District.
- Lebanon Historical Society archives.
- Lebanon College.
- The Dance Studio.
- The AVA Gallery and Arts Center.
- The Mascoma River, which flows through the length of the CBD but is largely invisible to both vehicular and pedestrian traffic due to past and ongoing development patterns.
- Storrs Hill ski area and ski jump facility.
- Nature trails.
- Events in Colburn Park.
- The CCBA and Community Garden.

Having so many resources at a center of the community allows residents to enjoy leisure-time community activities near home, employees to exercise and relax before and after work, and all visitors to the downtown to experience an integrated sense of community. Lebanon has an opportunity to pro-actively guide and capitalize on our downtown's many and varied cultural and recreational offerings. With some investment in marketing and promotion, support for its existing businesses and assets, and selective recruiting, the CBD could become even more vibrant as a visitors' destination.

3 | D **Future Challenges & Opportunities**

3 | D-1 Downtown Revitalization

There is little undeveloped land in the CBD, but the in-place infrastructure, available services, and familiarity among established clientele provide a cost-effective environment for economic development. The mixed-use

key points | future challenges & opportunities

- Downtown revitalization efforts should focus on rehabilitating and fully occupying existing buildings, and increasing the density of existing sites through infill development.
- Establishing a critical mass of activity, including businesses that provide residents with basic goods and services, within the CBD will assure downtown's economic viability.
- Improvements are needed to enhance the design and appearance of downtown gateways, streetscapes and the Mall, including increasing awareness of and access to the Mascoma River.
- Increasing the walkability and bike-ability of downtown Lebanon is a priority for the City and will support efforts to reduce congestion within the CBD by encouraging alternatives to driving including public transit.
- Coordinated programming and marketing of the cultural amenities and natural resources available within or within walking distance of the CBD is needed to attract people downtown.
- Downtown vitality will be enhanced by increasing the number of people living within the CBD, including in the upper floors of mixed-use buildings.



sites, with substantial infrastructure already in place, will tend to cost the City less than similar new development located in outlying areas that would require new infrastructure and services.

Given that there is existing downtown building space available or under-utilized, it is not appropriate to rezone additional land as CBD. However, due to the existing character of the businesses on South Park Street, it may be desirable to include that area in the CBD. Within the CBD, the focus should be on continued build-out, redevelopment and intensification rather than the development of new properties that would compete with existing ones. Making better use of existing retail space in Lebanon's downtown areas was an issue repeatedly emphasized at the 1999 "Lebanon: A Look Ahead" Master Plan Forum.

Any new development within the CBD should be compatible with existing mixed uses. In general, mixed use of structures should be encouraged, such as combining commercial storefronts with upper-story residential units. Further, all planning for the CBD should keep in mind the importance of pedestrian linkages and the CBD's role as a service center for residents in the surrounding neighborhoods.

3 | D-2

Economic Development

The key goal of economic development within the CBD should be to establish a critical mass of activity while reinforcing the mix of uses, improving public awareness of what downtown Lebanon has to offer both within the City and region, making downtown an attractive and convenient location to visit, and enhancing the competitive position of the CBD within the City and region. Critical mass results when a collection of retail and commercial establishments generate a level of customer traffic that attracts other businesses to locate in the area.

Within the CBD, the relocation of Lebanon College to the Mall, in particular, has increased the number of people coming downtown and is contributing to downtown vitality. Additionally, with the relocation of the Dance Studio, the renovation of the Lebanon Opera House and nearby AVA Gallery, the CBD has moved from a retail center to a social and cultural hub.

While this transformation is welcomed, there are significant potential benefits if basic commercial (grocery, pharmacy, hardware) and community (post Office, City government, schools, day-care) services continue to be located within the CBD. Community-oriented services and shopping can meet the needs of the people who work and live in or near the downtown.

Existing businesses might benefit from the creation of a downtown business association that is supported by both the City and the Chamber of Commerce. This sort of coalition could facilitate marketing and promotion, design, and other initiatives to develop a more coordinated downtown business atmosphere.

3 | D-3

Architecture, Landscape & Urban Design

By improving design and community facilities within the CBD and integrating natural features, such as the Mascoma River, which with increased visibility could become the focal point of the CBD, the City can help maintain and enhance the image of the CBD as a pleasant, convenient and attractive place for people to shop, do business, live, and engage in recreational and social pursuits.

Gateways. Opportunities exist to improve and enhance gateways to the CBD, and efforts should be taken to ensure that gateways are not further degraded by design changes or incompatible land uses. Gateways create a sense of arrival for those entering the CBD and a first impression of downtown that can be either welcoming or impersonal. There are four primary gateways into the CBD:

- **Hanover Street from Route 120.** This gateway sends a confusing message to visitors and their first view of Lebanon is of gas stations. As travelers drive down Hanover Street, the hodgepodge of different land uses fails to provide a consistent identity or sense of arrival. A welcoming tone could be set through appropriate signage introducing downtown Lebanon, trees and landscaping, and by providing visual access to the Mascoma River.
- **Mechanic Street, Bank Street and School Street.** These three entrances to the CBD reinforce the positive image of the Colburn Park area. The streets are lined with historic structures; there is appropriate signage; and the land uses are integrated.

Streetscape Elements. There are many visual improvements that could be made to the core CBD as well that would improve the already pleasant atmosphere.

The City of Lebanon was once known as the “City of Fountains”. The effort should continue to restore fountains as a characteristic of the City at the CBD’s gateways. There are currently fountains located at Campbell Street and North Park Street, in Colburn Park, and on the Mall. Infrastructure is in place for a fountain at the intersection of South Park and School Street.

Development of a master landscaping plan for public areas within and around the CBD was originally proposed in the 1993 Master Plan, but has not yet been undertaken. This plan would identify opportunities for street trees, shrubs, perennial beds, or public gardens. This plan could be developed in cooperation with the Lebanon Garden Club and downtown merchants, to whom the City owes great gratitude for their hard work. A regular program of street tree planting and maintenance would be one component of such a plan, and the City could make use of its membership in the Tree City USA program for assistance in setting up a tree planting and maintenance program.

Streetlights within the CBD should be replaced with fixtures that have a more historical character, which would add more definition to the downtown. In addition, the lights should meet or exceed the standards in the Site Plan Review regulations and current energy efficiency standards. Similarly, it would add definition to the district to have brown street signs in the CBD.

Throughout the CBD, buildings should be kept close to the street to maintain the “downtown” appearance, with entrances and uses at the street level that invite pedestrian activity. Improved and attractive streetscape amenities, such as movable planters, seating, and adequate trash cans also promote a friendly pedestrian environment.

The Mall. The original urban renewal design made an ambiguous statement as to the commercial and retail nature of the Mall area by routing traffic past the backs of buildings. The Mall itself has design flaws that created “chopped up” and unusable public spaces. The design flaws were partially corrected by renovations at the west end of the Mall and additional improvements made in the late-1990s.



the mall

More work could be done to upgrade the appearance of the area directly behind the buildings on the south side of the Mall facing Hanover Street. This sort of project could be funded through a Tax Increment Financing (TIF) district, which is a mechanism for allocating the additional tax revenues (generated as property values within a defined area increase due to new construction or rehabilitation) to public improvements within the district.

Mascoma River. The Mascoma River is perhaps the most unique and under-utilized resource in downtown Lebanon. Although the river runs directly through the heart of downtown, the buildings and public spaces do not establish functional or visual linkages to it.

The 1985 Lebanon Downtown Improvement Plan recommended the creation of a pedestrian recreational park along the Mascoma River through the CBD. The report noted the following: “In its current condition, the River provides an opportunity to lend greater visual and functional continuity to the downtown by establishing a continuous greenbelt and physical linkage between segmented sections of the CBD.” This recommendation has only recently begun to be implemented.

In 2005, the Carter Community Building Association (CCBA) commenced construction of a “river walk” along a portion of the Mascoma River. The City may want to investigate the feasibility of constructing a “river walk” through the CBD or it may want to consider other alternatives, such as increased pedestrian amenities, for example benches near the river, or improved visual access. A “river walk” in the CBD area could also connect with the Northern Rail Trail, which currently originates near the CCBA and extends east to the Enfield Town line and beyond, as well as the Mascoma River Greenway extending towards West Lebanon.

3 | D-4 Transportation System

To reduce traffic congestion, enhance the community feel of the CBD, and increase safety, the City should encourage a diversity of modes of transportation by improving conditions for bicyclists and pedestrians, improving the flow of traffic, and creating incentives for people to use mass transit and other travel modes.

Pedestrian and Bicycle Circulation. Pedestrian and bicycle circulation can be improved by creating a network of pathways in and around the CBD, as well as connections to the surrounding residential neighborhoods. Improvement of bikeways as recreational and commuter corridors was an issue raised repeatedly by members of the public during the City’s previous, and the most recent, master planning processes, including during the 1999 and 2009 Master Plan public forums. Improved pedestrian and bicycle circulation is one of the core concepts listed on the first page of this plan and should be one of the City’s highest priorities.

Developing a citywide system of pedestrian paths, bikeways and bike lanes will encourage residents and employees living and working in or near the CBD to walk or bike more frequently, lessening the extent and impact of vehicular traffic and, as discussed elsewhere in this plan, creating recreational opportunities. It will also make walking into and around downtown safer and more pleasant for everyone, including people with disabilities, seniors and children. People should be able to move safely and conveniently throughout the City without the need for a car. Streets should be easy to cross, with signs and visible, well-placed crosswalks.

Recreational facilities and pedestrian and bike paths should also be created and enhanced in the Lebanon CBD. Upgrading and increasing recreational facilities, such as “pocket parks” and walking/bike paths will enhance the character of the CBD. Land should be banked for this use now, and should be coordinated with the most

recent recreation and pedestrian/bicycle plan, as amended by the Planning Board. Appropriate and attractive equipment and amenities, such as well-placed bicycle racks, would encourage greater bicycle use.

Linkages between various recreational areas in the CBD would encourage pedestrian and bicycle activity. There have been discussions about connecting Hanover Street to the CCBA property with a bicycle/pedestrian bridge over the Mascoma River. Easements and rights-of-way could be acquired linking the CBD to Storrs Hill and other recreational areas. Access to the Mascoma River could be improved through the development of a phased plan for a “river walk” along the Mascoma River as described above. Better linkages could also be created between existing trails and paths, such as extending the Rail Trail to West Lebanon.

Park Street. The circulation pattern in and around Colburn Park and the Lebanon Village Marketplace complex could be improved for pedestrians and bicyclists in general, and for people with disabilities, seniors and children in particular. The Park Street loop around Colburn Park is wide with poorly defined lanes, resulting in meandering vehicle paths that create confusion and hazardous conditions for pedestrians and drivers alike. To create a more pedestrian friendly environment, the following improvements to the Park Street loop are examples of what may be needed:

- Reducing the width of the traffic circle.
- Clearly marking travel lanes.
- “Squaring-off” the corners to create more of a 90-degree turn that would require traffic to slow.
- Providing additional on-street parking.
- Increasing the visibility of crosswalks through a change in surface treatment (ex. stamped concrete, brick pavers, painting the crosswalk a solid color, etc.). The visibility of these materials tends to slow down vehicles and highlight the pedestrian experience.
- Extending the curbs out at the crosswalks. Curb extensions around the crosswalks leading from the park to the Mall and to City Hall would better alert drivers to the presence of pedestrians and reduce the distance pedestrians have to travel to cross the road.

In addition, other traffic calming measures could be implemented around Colburn Park. For instance, planting shade trees could buffer homes and businesses from the street and slow traffic. Sidewalks could be widened and bicycle lanes added where safe and appropriate.

Crosswalks around Colburn Park and leading to both the Mall and the Lebanon Village Marketplace complex should be the first priorities for such treatment to enhance pedestrian safety. Pedestrian access should also be provided down Mechanic Street to improve linkages between that area’s residential neighborhoods and the CBD.

Public Transit. Use of public transit should be encouraged to decrease traffic congestion and parking demand in the CBD. Developing and improving amenities for public transit users, such as shelters, benches, and access to public rest rooms, could encourage increased usage. The City should build an appropriate off-road bus stop near Colburn Park, which is a major transfer point for the Advanced Transit system. The bus stop and related amenities could be incorporated into plans for other streetscape and roadway improvement projects.

The City should work with transit providers and developers to develop and maintain public transit facilities and amenities throughout Lebanon. There is also an opportunity to partner with area transit providers and the Upper Valley Transportation Management Association (UVTMA) to raise public awareness of public transit options.

Parking. Parking availability has been an ongoing issue in the CBD. A project to reorganize and add to the parking area behind City Hall has added roughly 200 more parking spaces. People are more likely to park behind stores if they can actually see their destination and there is a clear and visually pleasing pathway that leads them there. The overall design of the CBD could be improved to develop a greater visual linkage between businesses and parking areas. Parking in the Lebanon CBD should continue to be monitored on an annual basis, with attention to the peak hours of usage, to ensure continued availability.

This parking area is also used for commuters who take the bus from Court Street to their place of work or other destinations. This condition would be improved by creating a bus stop in a less congested location. To regulate the parking for short-term business and shopping visits the City should consider having a parking attendant.

3 | D-5 Historic and Cultural Resources

Highlighting the City’s cultural, historic and recreational offerings through a central information kiosk, website and/or printed brochure (all of which would need to be maintained and kept up-to-date) is one initiative that would help support existing organizations and encourage additional businesses to locate here. Public art, such as a mural on a downtown building wall, a sculpture in the park, and new fountains, adds character to the CBD. This is important since Lebanon was once known as the “City of Fountains.” Events in Colburn Park contribute to a sense of community and bring people to the CBD. The City should continue to work with area merchants and organizations to develop and sponsor events and activities in Colburn Park as well as on the Mall throughout the year.

3 | D-6 Housing

The Lebanon CBD has a mix of commercial, institutional, and civic and public uses, but a major land use within Lebanon’s Central Business District is housing. Having a concentration of housing in and around the CBD (infill and mixed use) contributes to the pedestrian scale of the community and the historic “small-town” feeling.

Some people are not as mobile as the general population. They may not have cars or be able to drive and thus may be dependent upon public transportation. Living within easy walking distance of the CBD core may greatly enhance their quality of life by allowing access to services, shopping, dining, recreational, and social opportunities. However, the physical area of the CBD and development opportunities within it are limited, so any new housing development within the CBD should be directed to the population groups who most need to be within easy walking distance of the City’s core.

The location of additional workforce and other housing opportunities in proximity to the professional, cultural, and service oriented uses that currently exist within the CBD, will foster the vibrancy of the downtown and a healthy local economy. Housing of this type can be developed in the upper floors of retail and professional buildings as well as in apartments accessory to primary single-family dwellings.

OUTCOME 1 Continue revitalization of the Lebanon Central Business District.	
STRATEGIES	ACTIONS
1 Support economic development in the CBD.	Determine telecommunications technology demand and consider investing in upgrades to support high-tech firms that may want to relocate to the CBD. 1
2 Support the creation of a downtown business association that facilitates business marketing, promotional and other coordinated efforts.	Expand the CBD to include properties along South Park Street. 2
3 Encourage the business community's efforts to recruit appropriate businesses, such as a pharmacy, book store, or computer store, that will serve the needs of those who work or live in or near the CBD such as Lebanon College students, professionals, etc.	Explore relocating the CBD Advance Transit transfer point. 3
4 Support the Lebanon CBD supporting the infill, redevelopment, and expansion of uses in this district and by keeping government services downtown so that they remain accessible to residents and draw people downtown.	Create visually appealing gateways into the downtown areas at Bank Street, Hanover Street, School Street, and Mechanic Street with paintings, lighting, and signs. 4
5 Encourage mixed use, increased densities, and infill development to maintain vitality and maximize use of space as well as promoting increased density of under-utilized or defunct properties with mixed uses.	Develop a landscaping plan for public areas within and around the CBD, identifying opportunities for native and specimen street trees, shrubs, and perennial beds, with the help of the Lebanon Garden Club. (Refer to 1998 Saucier and Flynn landscaping plan for the CBD.) 5
6 Enhance the vitality of the Lebanon CBD with high quality community facilities, architecture, landscape, and urban design.	Engage in a regular program of street tree planting and maintenance in accordance with a landscaping master plan. 6
7 Support regulations that help to maintain the historic look and feel of the downtown, which may include architectural design standards and a design review board for buildings in the historic district.	Continue with membership in the Tree City USA program for assistance in setting up a tree planting and maintenance program. 7
8 Encourage the development of maps that show locations of businesses and services and recreational, historical, and cultural points of interest.	Provide improved and attractive streetscape amenities, such as movable planters, seating, adequate trash cans, and bicycle racks throughout the CBD. 8
9 Support the development and distribution by the Chamber of Commerce of a unified calendar of events or a centrally placed, well maintained kiosk, publicizing recreational, cultural, civic, and historical events and programs in downtown Lebanon.	Upgrade appearance of the area directly behind buildings on the south side of the Mall facing Hanover Street, and consider use of an alternative financing mechanism such as a Tax Increment Financing (TIF) district or tax incentives. 9
10 Encourage permanent and temporary placement of outdoor sculpture and art on public land and in indoor spaces. Share information and coordinate possible programming with AVA, the Art Department of the School District and other interested parties.	Improve the design of the municipal parking area to develop a greater visual linkage between parking and downtown businesses. 10
11 Support the establishment of walking tours of the City's historic district guided by the Heritage Commission.	Continue to monitor the parking situation on an annual basis, with attention to the peak hours of usage, to ensure continued availability and consider rehiring a parking attendant. 11
12 Encourage a diversity of transportation uses within the CBD by improving roadway design, increasing incentives for mass transit use, and providing pedestrian and bicycle linkages.	Improve Mechanic Street with sidewalks and bike paths. 12
13 Develop, over time, a citywide system of pedestrian paths, bikeways, and bike lanes, which connect neighborhoods, recreational areas, and the CBD.	Replace street lighting with a more historic or traditional style light fixture. 13
14 Encourage private property owners along ideal and alternative routes to consider voluntary sale or donations of easements or rights-of-way or a right of first offer for when the land next comes up for sale.	Replace typical street signs with historic brown street signs. 14
15 Encourage pedestrian access along Mechanic Street in the NH DOT 10-year plan and CIP to improve linkages between that area's residential neighborhoods and the CBD.	Continue to work with area merchants, the Recreation Department, the Opera House and CCBA to develop, sponsor and promote activities such as street dances, a folk music series, arts & crafts fairs, and the farmers' market in Colburn Park and on the Mall. 15
	Clearly demarcate the travel lanes around Colburn Park to distinguish them for drivers, and consider speed tables or colored asphalt before crosswalks and institute other traffic calming measures there to slow down traffic and increase pedestrian safety and comfort. 16

OUTCOME 1 Continue revitalization of the Lebanon Central Business District.

STRATEGIES

- 16 Look for opportunities to increase and upgrade recreational areas and facilities within the CBD, such as “pocket parks” and walking and biking paths.
- 17 Improve access to Mascoma River frontage, through development of a phased plan for a “river walk” along the Mascoma River as recommended in the 1993 Master Plan and 1985 Lebanon Downtown Improvement Plan.
- 18 Create and improve bikeway linkages, such as extending the Northern Rail Trail/Mascoma River Greenway to West Lebanon.
- 19 Identify bicycle routes off main streets in an effort to make transportation more accessible for riders, for example, a bike route from the Lebanon Mall Entrance through the major parking lot to Spencer Street to Elm Street.
- 20 Ensure that there is a diversity of housing in and around the Lebanon CBD.
- 21 Provide higher density housing while protecting the historical character and scale of the CBD.
- 22 Encourage and work with the Lebanon Housing Authority and other organizations working on housing issues to concentrate new housing for all ages, income categories, and physical abilities within or close to the CBD.
- 23 Provide good sidewalks and separate bike/pedestrian paths to encourage safe use of these alternatives to driving from nearby neighborhoods to the CBD.
- 24 Explore incentives for creating housing opportunities on upper level floors of CBD businesses, such as those in the Mall.
- 25 Encourage accessory apartments and multiple-family dwellings in areas around the CBD.
- 26 Focus on the Mascoma River and highlight it through urban design.
- 27 Take into consideration the visual incorporation of the river when the bridge on Hanover Street is redesigned.

ACTIONS

- 17 Improve visibility of crosswalk areas around Colburn Park through an alternative surface treatment (stamped concrete, pavers, brick, solid painted area, etc.), developing curb extensions, or similar measures
- 18 Work cooperatively with transit providers and developers to develop and improve amenities for transit users, such as shelters, benches, and access to public rest rooms at the CBD transfer point, when planning public facilities and roadway modifications.
- 19 Identify a pedestrian route from the CBD to Storrs Hill, utilizing existing sidewalks.
- 20 Develop a plan for bikeways/pedestrian paths connecting neighborhoods to CBD core.
- 21 Develop a plan for highlighting and making better use of the Mascoma River as a focal point for the CBD.

4| West Lebanon Central Business District

4|A Vision & Purpose

Downtown West Lebanon shall be a vibrant village - a crossroads where residents and visitors work, meet, shop, and share in a good quality of life and a firm sense of community and belonging. The City of Lebanon seeks to promote and enhance downtown West Lebanon as a historic center offering a “small-town” atmosphere, serving the commercial, service and recreational needs of residents in surrounding neighborhoods, and providing opportunities for professional and similar businesses seeking the benefits of a downtown location.

4|B Issues & Priorities

4|B-1 Downtown Revitalization

The area that is now the West Lebanon Central Business District developed as a linear village along the Connecticut River with what is now Route 4 as its main street. The village’s historic fabric has experienced considerable fraying during the past half century, but its role as a center for surrounding neighborhoods and key gateway location remain strong incentives for revitalization. There are ample opportunities to redevelop single-use sites within the district with higher-density, mixed-use projects. Such development, along with traffic calming, access management, streetscape and pedestrian improvements, and related amenities, would enhance the vitality and economic viability of the district. An active and coordinated group of stakeholders is needed to assist the City with planning and implementing revitalization efforts.

4|C Existing Conditions & Trends

4|C-1 General Description

Currently, the West Lebanon Central Business District covers approximately 50 acres along Main Street from Seminary Hill to just north of Bridge Street, and from the Connecticut River east to an approximate boundary midway between Main Street and Maple Street. The pattern of commercial development within this area is primarily linear, occurring along both sides of Main Street.

Within this area, there is a fair amount of diversity as to the businesses and related services for local residents, some of which are expanding. However, some central lots continue to be vacant or under-utilized despite the CBD’s in-place infrastructure, available services, and familiarity among local and neighboring clientele, which provide a cost-effective environment for businesses to locate and grow.

The City re-zoned the 38-acre area to the north of the existing CBD, located between the Connecticut River and North Main Street, in 2010 and the Planning Board subsequently approved a mixed-use project in that area to include life sciences Office and research space, service retail stores, single-family homes and rental housing.

key points | vision & purpose

- Enhance downtown West Lebanon’s role as a vibrant village
- Preserve West Lebanon’s historic and small-town character

key points | issues & priorities

- Promote revitalization of the West Lebanon CBD to improve the viability of its businesses and vitality of surrounding community



west lebanon CDB and surrounding neighborhoods

key points | existing conditions & trends

- West Lebanon CBD developed as a linear village, and has potential for redevelopment and infill at higher densities
- Historic, primarily single-family, residential neighborhoods extend outward from the CBD.
- The new Kilton library is a center for community activities and there are a number of recreation areas within walking distance of the CBD.
- West Lebanon's main street is a heavily traveled state highway and the CBD experiences traffic congestion at peak travel times.



kilton public library

4 | C-2 **Surrounding Residential Neighborhoods**

The residential areas adjacent to the West Lebanon CBD consist primarily of single-family homes, with a mix of two-family and multi-family buildings. Seminary Hill, Maple Street, North Main Street, Crafts Avenue, and South Main Street are all within walking distance of the downtown area. The Maple Street and Crafts Avenue residential areas have been considered for Historic District designation, which would preserve the area's historic characteristics and design elements. A historic resources inventory of a part of the West Lebanon Village area was completed in 1997 and should serve as a basis for ongoing historic preservation in the area.

4 | C-3 **Cultural and Recreation Resources**

The new Kilton Library located on Main Street has the opportunity to serve as a community center, helping to promote the revitalization of the West Lebanon.

Recreation areas near downtown West Lebanon include Civic Memorial Field behind Seminary Hill School, walking trails behind "The Falls" development on Route 10, and the Little League Park at Smith Field on Maple Street. Playgrounds at Mt. Lebanon and Seminary Hill schools also serve as recreation areas.

4 | C-4 **Traffic**

The traffic on Main Street, averaging 15,000 vehicles per day, is likely to be detrimental to some downtown businesses as the congestion can discourage and inhibit customers, but may be beneficial to others, as it relates to the number of travelers exposed to this area.

The peak commuting times and Saturdays are most problematic. Congestion is particularly a problem at the intersections of Seminary Hill Road/Route 12A/Maple Street and Main Street/Bridge Street/Dana Street. This congestion increases the conflict between vehicles parking in the West Lebanon CBD and those traveling through to Route 12A or Route 4 towards Lebanon. Extensive curb cuts along the roadway add to the problem.

4 | D **Future Challenges & Opportunities**

4 | D-1 **Downtown Revitalization**

The revitalization of the West Lebanon Central Business District can flourish if there is a concerted effort among City officials, business owners, and residents to address community needs, traffic and parking concerns, and the preservation of historic assets, economic vitality, and small-town character. Continued rehabilitation, reuse of older buildings, and plans for new construction will improve the area for business uses. Additionally, the reopening of the Claremont-Concord Rail Line for freight service may open new economic opportunities in this area.

The focus should be on infill and redevelopment rather than developing new properties which would compete with existing commercially-zoned properties. Making better use of existing retail space in the City's downtown areas was an issue repeatedly emphasized at the January 2009 Master Plan Forum. A comprehensive inventory

of both vacant and under-utilized downtown buildings and sites would be a good first step in an overall strategy to increase infill and redevelopment.

Any new developments within the West Lebanon CBD should be compatible with existing uses and be attractive and complementary to the community's history. In general, mixed use should be encouraged, such as combining commercial storefronts with upper-story residential units. This will help maintain and expand housing opportunities in the downtown.

The current mix of businesses in the district could provide a more consistent identity or unified vision for the downtown. In order for the CBD to remain a viable downtown center, serving the needs of residents and attracting regular customers, a coordinated plan will be needed that assesses its economic viability and business market potential, preserves its historic features and appearance, and takes into account the many needs of local residents.

As there is a critical mass of residents of all ages who live within and just outside of the West Lebanon CBD, community-oriented services and shopping (such as civic services, grocery, restaurants, pharmacy, day care, or a farmers' market) should be encouraged to stay in or move to the West Lebanon CBD to meet the needs of the people who work and live in or near the downtown. School-aged children should specifically be included among those to be served by community facilities and commercial establishments. The proximity and concentration of different services to surrounding residential neighborhoods and public transit allow more tasks and activities to be accomplished with significantly less vehicular traffic generated. Providing additional recreation, park, or enhanced community center functions is essential to the vitality of this area, completing the symbiotic relationship between the existing businesses in the core, and the nearby residents.

The 1989 West Lebanon Downtown Study, prepared by the Upper Valley Lake Sunapee Council (now Regional Planning Commission) for the West Lebanon Downtown Study Committee may provide a good foundation for a plan for the West Lebanon CBD. The desired revitalization work cannot be done without a coordinated planning effort, involving businesses, the City, and residents, as well as the help of organizations and agencies. The New Hampshire Main Street Program, which is part of the National Trust for Historic Preservation, is one resource available to communities who are willing to make a commitment to downtown revitalization.

4 | D-2 Civic Oversight

The West Lebanon Civic Association was recently created to work with the City, the Chamber of Commerce, local businesses and other interested parties to develop a comprehensive plan for the West Lebanon CBD that addresses market potential, design, traffic, parking, and a host of other issues, as described within this chapter. The civic association could also develop a strategy for recruiting the types of businesses that would complement the existing mix, build on the area's assets, and provide the services residents want and need.

4 | D-3 Relationship with the Route 12A Commercial District

One key element to retaining the village identity and character of the West Lebanon CBD is to maintain the current transition area between the West Lebanon CBD and the Route 12A Commercial District. The current mix of residential and professional uses on South Main Street serve as an effective buffer and should be maintained

key points | future challenges & opportunities

- Downtown revitalization efforts should focus on redevelopment and infill at higher densities, and on maintaining stable businesses that provide neighborhood residents with basic goods and services.
- The recently created West Lebanon Civic Association should work with the City, the Chamber of Commerce, local businesses and other interested parties, is needed to develop a comprehensive plan for the West Lebanon CBD.
- To retain the village identity and character of the West Lebanon CBD, the current transition area between the West Lebanon CBD and the Route 12A Commercial District must be maintained.
- Given the proximity of the West Lebanon CBD and White River Junction to each other and to the river, both communities might benefit from coordinated planning and development strategies.
- There are opportunities to reestablish an attractive and functional streetscape in the West Lebanon CBD, which could be an important economic development tool.
- The Westboro Rail Yard property is perhaps the West Lebanon CBD's single greatest obstacle and its greatest opportunity, and its future redevelopment will have a major impact on the village.
- West Lebanon CBD needs a variety of improvements to its transportation infrastructure including: better traffic flow and circulation, increased access management, safe routes for pedestrian and bicyclists, additional parking, better public transit facilities to meet growing demand, and accommodations for renewed rail service.
- The preservation and re-use of historic structures within the CBD could be an integral piece of a downtown revitalization plan, and would strengthen community pride and identity.
- Areas adjacent to the West Lebanon CBD provide much needed workforce housing, and encouraging additional workforce housing opportunities in this area would benefit the village.

without introducing more commercial uses. Restricting commercial uses will also protect the potential aquifer site located in this area, which the City may need as a back-up water supply source (see 2001 Wright/Pierce Study). Maintaining a compact West Lebanon CBD with well-established boundaries, and a village scale and pattern of development, will help maintain its character and ensure a continued sense of community for West Lebanon residents and business owners.

4 | D-4 Relationship with White River Junction

The 1989 West Lebanon Downtown Study recommended that certain components of a downtown revitalization study might be more successful if they were addressed cooperatively between the White River Junction, Vermont and West Lebanon business districts. This observation remains true today, and perhaps even more relevant as White River Junction is planning for significant redevelopment of the under-utilized properties along Route 4 just across the river from the West Lebanon CBD. Given the proximity of both historic villages to each other and to the river, both communities might benefit from coordinated planning and development strategies, and be better positioned to successfully compete with other commercial areas. The 1989 study listed several examples of potential cooperation, including:

- Route 4/Bridge Street improvements
- Joint advertising and branding, such as “The River Towns”
- Creating a Railroad Bridge walkway

The 2007 study, *Pedestrian / Bicycle Trail Linking Lebanon and Hartford via the Railroad Bridge over the Connecticut River*, assessed the feasibility of a rails-with-trails connection between the two communities and concluded that a multi-use trail over the existing railroad bridge appeared feasible provided sufficient funding is available.

4 | D-5 Architecture, Landscape & Urban Design

Another component of a downtown revitalization plan addresses design improvements. There are opportunities to reestablish an attractive and functional streetscape in the West Lebanon CBD. Providing physical continuity along the street, signs and building facades in character with the village’s history, as well as appropriate landscaping can all improve the downtown streetscape. Design should not be overlooked as an important economic development tool. The City of Lebanon Heritage Commission could assist both the City and private enterprise to plan and evaluate new development for design that is compatible with the character of the City.

4 | D-6 Westboro Rail Yard

The Westboro Rail Yard property is perhaps the West Lebanon CBD’s single greatest obstacle and its greatest opportunity. The property, by itself, constitutes about 40 percent of the land in the district, so its future redevelopment will have a major impact on the village. In addition to its economic and transportation opportunities, the property contains river frontage, including an opportunity to complete a proposed Brownfield-to-Greenfield project on the north end of this property where the City of Lebanon has purchased three acres of property, for a community “green space” and river “car-top” boat launch.

Many of the existing buildings in the Westboro Yard are deteriorating, unsightly, and potentially unsafe. Although they are a physical reminder of West Lebanon's railroad heritage, residents and property owners have expressed the opinion that those buildings which cannot be restored for historic value should perhaps be condemned and demolished to prevent potential hazards and to improve the overall appearance of the downtown area.

The state leases the Westboro Yard to a private freight operator and the New Hampshire Department of Transportation has indicated its intention to maintain the rail uses on the property for the foreseeable future. However, continued active rail use and limited public access to the property and adjoining riverfront conflict with some of the stated goals of the community.

Many ideas for using the property have been expressed by the public, including commercial, residential, and/or recreational development. The idea for a riverfront park in West Lebanon and the residents' overall desire for more green space and parks have been discussed for many years. Also, there is still a potential to link with the riverfront and the railroad museum in White River Junction, Vermont for a bi-state park. All of these ideas should continue to be explored by the City Council's Westboro Yard committee in cooperation with residents, business owners, the state, and the railroad operator.

4 | D-7 Transportation Coordination

Traffic Management. If the City decides to continue building out Route 12A, the traffic impacts to West Lebanon CBD will need to be addressed in a comprehensive manner.

Any reactivation of uses of the Westboro Yard as described previously, could contribute to additional traffic. The railroad operator estimated that their plan to restore freight use would bring 3,600 trucks to the Westboro Yard per year, or about 10 per day. Opportunities to divert heavy truck traffic from Main Street should be evaluated to help minimize its negative impact on the roadways and the pedestrian experience. Even the creation of a riverfront park would generate increased traffic. A thorough study should be conducted on potential impacts to traffic of any future redevelopment of the Westboro Yard.

The City and state are in the process of designing a new bridge to replace the current one over the rail tracks near the intersection of Routes 4 and 12A. This is a complex and important intersection, both logistically and aesthetically, especially if the new design is to include access into the southern end of the Westboro Rail Yard. The state is also designing a new bridge over the Connecticut River to White River Junction, Vermont to replace the current bridge, which has been found to be structurally deficient. Care should be taken to ensure that these new bridges are an asset to the West Lebanon CBD, rather than just efficient arteries for through traffic.

Traffic flow must be accommodated and improved while drivers are encouraged to stop and do business, rather than just travel through the village to other commercial areas. Limiting new curb cuts and providing a centralized parking lot or parking garage downtown would limit the number of vehicles turning and entering in a number of locations along the street, and would likely decrease congestion. Synchronized traffic lights or solutions that do not require stoplights, such as a "roundabout" (a smaller and safer version of a rotary), might help relieve congestion.



main street, west lebanon



west lebanon transit stop

Public Transit. Use of public transit should be encouraged since multiple bus routes in the Advance Transit network meet at the Kilton Library site. Also, in response to very strong ridership, Advance Transit has begun a second bus on the “Red Route”, which provides more frequent bus service between the Route 12A plazas and downtown West Lebanon. Developing and improving amenities for public transit use, such as shelters, benches, trash barrels and access to public rest rooms, often encourages increased usage. These amenities can be developed when planning public facilities and roadway modifications. All of these alternatives should be explored in greater depth, perhaps as part of an overall downtown revitalization plan.

Pedestrians and Bicyclists. There are many fairly low-cost and measurable improvements that can be implemented to enhance both community character and business in the West Lebanon CBD. Still greatly needed in the West Lebanon CBD are pedestrian amenities, such as benches, sidewalks, landscaping, and bike paths for connection to adjacent neighborhoods. Pedestrian and bicycle circulation can be improved by creating a network of connecting pathways in and around the West Lebanon CBD, as well as connections to the surrounding residential neighborhoods, schools, and recreational areas. This is an issue that was repeatedly raised by members of the public during the master planning process. Developing a citywide system of pedestrian paths, bikeways and bike lanes, as well as bike racks, will encourage residents and employees living and working in or near the West Lebanon CBD to walk or bike more frequently, lessening the extent and impact of vehicular traffic, creating recreational opportunities, and bringing in more pedestrian business to the downtown.

The extension of the Northern Rail Trail/Mascoma River Greenway from the Lebanon CBD to the West Lebanon CBD (and on to the 12A commercial area and to White River Junction) would be extremely beneficial to provide linkages for pedestrians and bicyclists. Improved pedestrian and bicycle access from Lebanon to West Lebanon and White River Junction is an issue often raised at public meetings.

The Upper Valley Trails Alliance has created the Upper Valley Loop Trail, a continuous and safe bicycle route connecting Lebanon, Hanover, Norwich, and Hartford. The Westboro Rail Yard Bridge is one potential option for pedestrian and bicycle crossings to connect this trail. In addition, the new Route 4 bridge over the Connecticut River being designed by the state is expected to have improved bike lanes and a sidewalk which will improve the Loop Trail concept.

Curb extensions at crosswalk locations, raised and/or textured crosswalks, or segregated sidewalks with landscape buffers are all potential measures to improve pedestrian safety and provide a more pleasant experience for the pedestrian. In addition, crossing guards should be considered for the crosswalks near the Kilton Library site as a significant afternoon destination for school-aged children. The sidewalk network should be well maintained and interconnected, and provide benches, landscaping and shade trees, and attractive, non-obtrusive lighting. Although some of these measures can be implemented in the short-term, they should all be part of an overall revitalization plan, as described earlier in this chapter.

4 | D-8 Historic Resources

The Lebanon Historical Society also has a keen interest in the preservation of the Roundhouse, Sand House, and Bunk House in Westboro Rail Yard, if possible. The preservation of these structures would provide opportunities for heritage tourism. Additionally, the Heritage Commission will evaluate the possibility of creating a new historic district in West Lebanon’s Maple Street/Crafts Avenue residential area, which would recognize

and preserve the historic nature of these neighborhoods. The preservation and usage of all of these historic features could be an integral piece of a downtown revitalization plan, and support existing community pride and identity.

4 | D-9

Housing

Areas adjacent to the West Lebanon CBD provide much needed workforce housing. Residents of these areas contribute significantly to the financial well-being of businesses within the West Lebanon CBD, provide a continuing employee base for area businesses, and create a diverse and lively community. Appropriate housing that should be encouraged in or adjacent to the West Lebanon CBD including multi-family housing, upper-story apartments above retail or Office storefronts, and accessory apartments. Co-locating compatible professional, residential, and commercial uses encourages people to live where they work, fostering a vibrant downtown and healthy local economy. Encouraging additional workforce housing opportunities in this area would benefit this area as well as the overall community of Lebanon.

OUTCOME 1

Promote revitalization of the West Lebanon CBD to improve the viability of its businesses and vitality of surrounding community.

STRATEGIES

- 1 Support interested residents, business, and property owners to develop a vision and strategy for downtown revitalization.
- 2 Work to maintain or draw in governmental offices and social service agencies in the CBD as well as other community-oriented services and shops, such as groceries, cafes, and pharmacies.
- 3 Invest in the downtown by constructing and upgrading the infrastructure, such as including centrally located public parking, sidewalks, decorative street lighting, benches, public transit shelters, and parks, street trees, and other streetscape amenities.
- 4 Plan and develop, over time, a citywide system of pedestrian paths, bikeways, and bike lanes that connect neighborhoods, recreational areas, and the West Lebanon CBD.
- 5 Maintain and promote the mixed use of buildings within the CBD to maximize use of space and provide a diversity of housing opportunities.
- 6 Plan for the continued use of the former West Lebanon library building.
- 7 Encourage the Heritage Commission to explore the creation of an Historic District in West Lebanon, with Maple Street and Crafts Avenue as its core.
- 8 Encourage the Heritage Commission and Lebanon Historical Society partnership to preserve West Lebanon's many historic structures, including those that were identified in the West Lebanon Historic Resources Survey.
- 9 Consider joining forces with downtown White River Junction to jointly promote the two downtowns, to more successfully compete with larger commercial areas.
- 10 Restore riparian attributes and preserve aquifers.
- 11 Reorient downtown toward the river.
- 12 Promote the redevelopment of the Westboro Rail Yard.
- 13 Work to acquire all or part of the Westboro Rail Yard property from the State of New Hampshire for redevelopment.
- 14 Implement plans for recreation facilities including boating access as described in the 1989 West Lebanon Downtown Study and the 1998 Recreational Facilities Master Plan.
- 15 Continue negotiations with the state, Claremont-Concord, civic leaders, residents, and business owners to create a riverfront park, including boating access, while ensuring that the park is developed in an environmentally sensitive manner.
- 16 Promote a sense of community in the West Lebanon CBD by providing improved recreational facilities and gathering places.

ACTIONS

- 1 Develop a site area implementation plan, including urban design components, as a starting point for revitalizing the West Lebanon CBD.
- 2 Develop a marketing survey or similar tool, as part of an overall revitalization plan, to examine the area's existing strengths and determine the kinds of businesses, restaurants, and services that residents and visitors want and need.
- 3 Develop design guidelines for the downtown area such as appropriate signage, building front facades, and landscaping to ensure compatibility with the vision for the downtown. Provide these design guidelines to landowners and encourage their implementation.
- 4 Investigate placing overhead utilities underground to improve the area's aesthetic appearance.
- 5 Investigate the New Hampshire Main Street Program to help revitalize downtown West Lebanon.
- 6 Investigate the potential of a business development tax credit program to encourage development and redevelopment within the West Lebanon CBD.
- 7 Begin redevelopment of the Westboro Rail Yard by focusing on clean-up efforts including demolition of unsafe structures that cannot be restored for historic value and removal of contamination and other hazardous materials on the site.
- 8 Identify properties in the West Lebanon CBD for a centrally located park and/or community center facility, as well as pocket parks. Coordinate any land banking with the most recent recreation master plan and NRI report.
- 9 Increase the police presence in West Lebanon, possibly including bicycle or foot patrols, to provide a greater sense of safety and security for businesses and patrons.
- 10 Develop a plan for a safe, convenient, and attractive network of pedestrian paths, bikeways, and bike lanes, including connections to parks and transit stops, as well as bikeracks.
- 11 Improve crosswalks, by considering curb extensions and raised, textured or colored crosswalks.
- 12 Provide benches, landscaping, and shade trees, and attractive, non-obtrusive lighting.
- 13 Develop a plan for traffic improvements in the West Lebanon CBD.
- 14 Study potential impacts on traffic that may result from redevelopment/reuse of the Westboro Rail Yard.
- 15 Develop and improve accessibility to and amenities for mass transit use, such as shelters, benches, and access to public rest rooms. These amenities can be developed when planning public facilities and roadway modifications.

OUTCOME 1

Promote revitalization of the West Lebanon CBD to improve the viability of its businesses and vitality of surrounding community.

STRATEGIES

- 17 Promote linkages within the West Lebanon CBD as well as to other recreational areas and the Lebanon CBD, for pedestrian and bicycle activity, including both planning and subsequent development of an interconnected system of pedestrian and bicycle ways.
- 18 Provide a safer and more pleasant environment for pedestrians in the West Lebanon CBD.
- 19 Consider separating sidewalks from the roadway with landscape buffers, and ensure that the sidewalk network and streetscape improvements are well maintained and interconnected.
- 20 Work to re-route or otherwise limit the amount of heavy truck traffic passing through the CBD.
- 21 Limit new curb cuts along South Main Street.
- 22 Provide sufficient centrally located public parking areas downtown.
- 23 Consider improving traffic lights at the problematic intersections, including Seminary Hill/South Main St and Main St/Bridge St, and also consider roundabouts or other solutions, where appropriate.
- 24 Ensure that the new bridges on South Main Street and Bridge Street are well-designed and become assets to the West Lebanon CBD area.
- 25 Maintain a diversity of housing types in or adjacent to the CBD, including multi-family housing, upper-story apartments above retail storefronts, and accessory apartments, to provide needed housing and to foster a vibrant downtown with a healthy economy.
- 26 Provide higher density housing while protecting the historical character and scale of the CBD.
- 27 Encourage and work with the Lebanon Housing Authority and other organizations working on housing issues to concentrate new housing for all ages, income categories, and physical abilities within or close to the West Lebanon CBD.
- 28 Provide good sidewalks and separate bike/pedestrian paths to encourage safe use of these alternatives to driving from nearby neighborhoods to the WLCBD.
- 29 Explore incentives for creating housing opportunities on upper level floors of CBD businesses.
- 30 Encourage accessory apartments and multiple-family dwellings in areas around the CBD.
- 31 Consider allowing taller mixed-use buildings within the CBD to offset the costs of code requirements while maintaining compatibility with existing residential uses.

ACTIONS

- 16 Develop a plan for bikeways/pedestrian paths connecting neighborhoods to the CBD core.
- 17 Develop additional public parking in West Lebanon.

5| **Natural Resources**

5|A **Vision & Purpose**

Lebanon’s natural environment shall be widely considered a community asset, comprised of public and private ownership, whose conservation is essential to our continued health, quality of life, and the health of all species. It shall be recognized as in the public interest to encourage the preservation of open space, thus providing a healthful and attractive outdoor environment for the work and recreation of the City’s citizens, maintaining the character of the City’s landscape, and conserving its land, water, forest, agricultural, and wildlife resources.

Significant public and private investment shall improve the quality of our water, air and soils and shall have ensured the clarity of the night sky. A concerted combination of land protection, responsible stewardship and creative site planning shall conserve significant natural areas and important natural systems for the benefit of current and future generations while respecting and preserving the rights of property owners. Conservation areas, other open spaces, and greenbelts shall be linked with the City’s built environment to provide “green infrastructure” (a network of natural lands, working landscapes and other open spaces that conserves ecosystem values and functions and provides associated benefits to people) supportive of convenient public access and compatible recreation, viable waterways, and thriving wildlife populations.

The City of Lebanon shall identify its significant natural resources and promote the preservation, conservation, responsible management, and harmonious use of those resources for current and future generations.

5|B **Issues & Priorities**

5|B-1 **Balancing Resource Protection and Growth**

Lebanon, as the regional center of the Upper Valley, will continue to face demand for growth and development. The City will need to change how it grows and develops if we are to retain the open spaces and rural character that residents value.

5|B-2 **Healthy Environment, Healthy Community**

Without clean air, water and soil, Lebanon will not be a place people want to live or work. For example, protecting the quality of the water in the Mascoma River is a paramount issue for Lebanon, which depends on the river as a municipal water supply. However, connections between public health and the health of the natural environment go beyond concerns about pollution. Healthy, functioning ecosystems provide many benefits to human communities, and degraded ecosystems can create hazards.

5|C **Existing Conditions & Trends**

Among the City of Lebanon’s greatest assets is the abundance and high quality of its existing natural resources, including, but not limited to: clean air and water, wildlife habitat, undeveloped natural vistas, agricultural and

[key points](#) | [vision & purpose](#)

- Recognize that conservation of the natural environment is essential to maintaining the City’s quality of life and economic vitality
- Conserve open space and maintain the functions of natural systems while respecting the rights of property owners
- Establish a connected network of open spaces, conservation lands, greenbelts, and working farm and forest land that is accessible to City residents

[key points](#) | [issues & priorities](#)

- Seek a balanced approach to protecting the City’s natural resources while accommodating anticipated growth and maintaining the City’s role as a regional center
- Maintain the healthy, functioning natural systems that contribute to the City’s quality of life and economic vitality

key points | existing conditions & trends

- Clean air and dark night-time skies should not be taken for granted as the City continues to grow and develop.
- Lebanon’s hillsides and ridgelines are defining characteristics of the landscape, and are especially vulnerable to poorly planned development.
- The City’s water resources (rivers, streams, lakes, ponds, wetlands, floodplains) serve multiple functions, and their health is critical to Lebanon remaining an attractive place for people to live and work.
- While a large percentage of Lebanon remains undeveloped, a relatively small amount of open space is permanently protected from future development. Open space, scenic views and rural character contribute significantly to the City’s quality of life.
- There is a diversity of plant and animal species living in the City in a variety of habitats. Biodiversity is a hallmark of the health of the City’s natural environment.
- Nearly all the energy consumed in the City is imported.



forestry enterprises, and open space. The 2010 Lebanon Phase II Natural Resource Inventory (NRI) provides a detailed description of Lebanon’s natural resources and a foundation for future planning efforts. The following sections provide a general description of natural resource features.

5 | C-1 Air and Sky

Clean air contributes to public health and clear skies. Air pollution is a technically complex problem, but it is vital that high standards for air quality be enforced in planning Lebanon’s growth. The primary threats to the region’s air quality are our own automobiles, compounded by New England’s geographic and meteorological position as ‘America’s tailpipe’. Emissions from industrial manufacturing and power generation well to our west reach New Hampshire as acid rain, which has rendered lakes and ponds void of life, leached minerals and nutrients out of forest soils, and accelerated weathering of stone structures. High levels of ground ozone affect the breathing process and aggravate asthma in chronic sufferers.

As development has expanded in Lebanon in recent decades, the use of outdoor lighting has grown, particularly on Route 12A. While some lighting certainly is needed for visibility and security purposes, excessive lighting of commercial and industrial developments, parking lots, and streets can alter the character of a community. Excessive lighting wastes energy and causes glare, can impair vision, and cause accidents. Sky glow, which is reflected light visible in the night sky over large developments, reduces one’s ability to see celestial elements at night. Additionally, excessive lighting can negatively affect wildlife, particularly local and long-distance bird and amphibian migration, as well as the biorhythms of fish.

5 | C-2 Landform

Lebanon’s landform is defined by the ridgelines and undulating hills that rise from the river valleys. The ridgelines are the most visible element in our scenic landscape and very much define the City’s character. As is intrinsic to northern New England, much of Lebanon has steep slopes.

Construction, cutting and filling, and loss of vegetation on steep slopes can reduce soil stability, increase runoff and erosion, degrade water quality, compromise wildlife and plant habitat, and diminish the City’s natural landscape. Locating development on steep slopes can also increase maintenance costs for infrastructure such as roads and sewer/septic systems. The City currently has a steep slope overlay district in order to prevent development on slopes in excess of 25 percent. The Steep Slope District currently includes all areas having slopes in excess of 25 percent that are located within the RL-3 zone.

Lebanon’s ridgelines create corridors through which wildlife can move, provide habitat for species like raptors and bobcats, and sustain many plants and animals not found at lower elevations. Some of the City’s exemplary natural communities, including those defined by the New Hampshire Natural Heritage Bureau as rare or exceptional, are found on ridgelines. The City’s ridgelines contribute greatly to Lebanon’s scenic character due to their current undeveloped state. The ridgelines are highly visible from many vantage points around the City, so a small development or even a single house on a ridgeline could be visible for miles.

As Lebanon has grown, the availability of flat dry land suitable for development has decreased. As a result, new development increasingly occurs in less suitable areas, such as those that have thin soils over bedrock, or

outright ledge. Blasting may be required to make such land suitable for building. On the other hand, blasting may negatively affect underground water resources in bedrock faults and fissures, in addition to degrading the City's naturally scenic resources.

5 | C-3 **Water Resources**

Lebanon's water resources include more than 130 miles of rivers and year-round streams, as well as floodplains, wetlands, vernal pools and other hydrologically connected features as described in great detail within the NRI.

5 | C-3a **Surface Waters.** Major surface waters in Lebanon include: the Connecticut and Mascoma Rivers, and their many tributaries (Hardy Hill Brook, Great Brook, Stoney Brook, Blodgett Brook, among others); and Mascoma Lake, Boston Lot Lake and a number of smaller ponds.

Similar to many communities in New Hampshire, the terrain in Lebanon has resulted in roadways having been built in close proximity to surface waters. This has increased the vulnerability of these surface waters to pollution and spills. As described in the Community Facilities and Services chapter of this plan, the Mascoma River is Lebanon's public drinking water supply. As such, the City has particular concern for safeguarding the river's water quality. However, most of the river's watershed, its tributaries and headwaters, are outside the City.

In 2011, the Mascoma River became the sixteenth protected river in the New Hampshire Rivers Management and Protection Program (RMPP). The designation formalizes a local and state partnership for the management of the River. A local advisory committee will coordinate the development and adoption of a river corridor management plan.

The New Hampshire Shoreland Water Quality Protection Act is a regulatory measure that offers limited protection to the Mascoma River, as well as other surface waters in the City (Mascoma Lake, Bloods/Trues Brook, Great Brook and Boston Lot Lake). Within the 250-foot protected shoreland of these water bodies, various protection measures apply.

In 1998, the Lebanon Planning Board adopted the recommendations in the Connecticut River Corridor Management Plan of the Connecticut River Joint Commission (CRJC) regarding the protection of the Connecticut River and its watershed. The CRJC advises that preserving vegetated buffers along waterways, including smaller streams, is the most effective protection for water resources. Buffers filter polluted runoff, stabilize banks, regulate stream flow, recharge aquifers, and provide important habitat, among other benefits.

5 | C-3b **Floodplains.** The floodplains along the City's surface waters have experienced substantial development during the past 40 years, most notably, significant portions of the developed area on the west side of Route 12A. Floodplain development reduces flood storage capability, increasing the likelihood of greater flooding including areas not previously affected and increasing the threat to life and property posed by flooding. Floodplain development also reduces the scenic and habitat value of the river valleys. Since 1980, the City has been in compliance with the National Flood Insurance Program, which is administered by the Federal Emergency Management Agency. This program prohibits development in the actual floodway, but permits it in the 100-year floodplain if the developments are flood-proofed.



mascoma river

Property	Acres
Alana Cole Conservation Area	18
Bakers Crossing Conservation Area	5
Boston Lot	439
Chambers Memorial Reserve	20
East Wilder Boat Launch	2.5
Farnum Hill Reserve	864
Goodwin Conservation Area	105
Jackson Property	15
Lebrun Meadow	23
Mill Parcel	4
Signal Hill Conservation Area	220
Starr Hill Natural Area	36
Ticknor Conservation Area	76
Trues Brook Natural Area	2
Two Rivers Conservation Area	24
Zeev Darer Memorial Natural Area	21
Total	1,874.5

conserved land

5 | C-3c **Wetlands.** Within Lebanon, there are an estimated 1,500 acres of wetlands. The small, incremental filling and degradation of wetlands over the years continues to add up to a significant loss of wetland acreage and function. Some wetland ecosystems in the City have become increasingly isolated islands surrounded by development, which decreases their ecological value, particularly as habitat. The NRI provides descriptive information related to the functions and values of Lebanon’s wetlands, as well as a priority ranking of their importance.

The value of wetlands for groundwater and stream recharge, flood attenuation, pollution abatement, and wildlife habitat is still vastly under-appreciated. Wetlands and their valuable functions essentially do the work of engineers free of charge, saving us money and effort in pollutant and flood mitigation.

5 | C-4 **Land Resources**

5 | C-4a **Open Space.** Lebanon residents have a long history of expressing their appreciation for and desire to maintain open space. Open space helps define community character, is home for wildlife and plants, protects drinking water supplies, and provides opportunities for recreation.

In addition to the numerous ecological benefits that it provides, studies have demonstrated the high economic value contributed by open space land. Open space is a “fiscal winner” for the City, as it brings in more money in taxes than it uses in services. Open space also increases the value of nearby developed land. It is vitally important to attracting and retaining businesses, and is also the foundation of the agriculture, forestry, tourism, and recreation industries.

The City still has a considerable amount of undeveloped (open/forested/agricultural) land. The NRI identifies 19,274 acres within Lebanon as undeveloped or natural habitat, representing approximately 72% of the City’s land area, in addition to 635 acres of agricultural land. Approximately 15,000 acres of open space lands are in Current Use, a reduced-rate property tax classification that is intended to help preserve the land base for forestry, agriculture, and other traditional uses.

5 | C-4b **Conserved Land.** Approximately 2,100 acres of land within the City are conserved and protected from future development. These conservation lands offer many beautiful and accessible areas that provide important habitat for plants and wildlife; protect water and air quality; and fulfill resident’s needs for recreational opportunities, an experience of nature close to home, and outdoor solitude. ADA access is provided where feasible and has been incorporated into the management policies of the City’s conservation lands.

There are more than 21 miles of trails on the City’s conservation lands, as depicted on the 2010 Lebanon Trails map. Additionally, there are ongoing efforts to identify and plan for additional linkages to a community wide trail network. The City employs a seasonal ranger to help maintain the City’s conservation lands, including the trails, and has recently stepped up efforts to recruit volunteers to assist as well.

5 | C-4c **Working Land.** Agriculture and forestry play an important role in the regional and state economies, as well as in stewardship of our natural resources and scenic landscape.

Increased development pressures and decreased profitability of small farms (partially due to higher tax burdens) have gradually diminished the rural and agricultural character of Lebanon’s outlying areas. However, the working farms and orchards that remain continue to contribute to our economy, and the City’s remaining

undeveloped prime agricultural soils leave the door open for continued farming in the future. Local farms provide fresh, high-quality food directly to the community and the region, eliminating the need for energy- and cost-intensive shipment and travel. They contribute directly and also indirectly to the economy by providing the quality of life that attracts companies and their workforce as well as tourists.

Forest lands are a dominant feature of Lebanon's landscape and ecosystem. Much of Lebanon is still wooded, and the City's productive forests are an important renewable resource. Several forest-based commercial enterprises (logging, milling, maple sugaring) rely upon the availability of healthy woodland. Forest fragmentation and conversion to other uses have many ecological, economic, and social impacts, such as reduced water quality, habitat loss, and declining traditional recreational opportunities

5 | C-5 Plants and Animals

5 | C-5a **Biodiversity.** Biodiversity enriches the community by providing environmental, economic, and social benefits. A diverse ecosystem can better survive disease and disturbance; can maintain essential biological services such as natural recycling of nutrients and wastes; and can provide models and resources for human advances in agricultural, medical, and other endeavors.

Lebanon is home to a wide variety and abundance of plants and animals, including more than 40 rare or endangered species. The 2010 Natural Resource Inventory provides a tremendous amount of information related to Lebanon's biodiversity, identifying 73 "Significant Ecological Areas" (SEAs) within the City's borders.

5 | C-5b **Urban Forests.** Trees in residential and commercial neighborhoods serve many important roles in the City of Lebanon. Among other benefits, urban trees provide shade, beauty, windbreak, cleaner air, privacy, and higher property values. When planted in the proper location, trees can help decrease summer cooling and winter heating bills. Also, the leaves, branches and trunks of trees catch rainwater before it reaches the pavement, reducing runoff, erosion, pollution, and other stormwater effects.

5 | C-5c **Invasive Species.** Through the efforts of the Connecticut River Joint Commissions, the New Hampshire Department of Agriculture Invasive Species Program, and other organizations, the City has been learning about problems associated with invasive exotic plants in Lebanon and in the region. The Conservation Commission regularly recommends that developers eliminate or limit the spread of such plants in the course of their work, and the Planning Board's Site Plan Review Regulations include a list of invasive exotic species that cannot be used to satisfy the landscaping requirements. However, broader coordinated efforts are needed. Purple loosestrife, buckthorns, honeysuckles, barberries, Japanese knotweed, as well as other invasive plants, occur and are spreading on all city-owned conservation lands, along roadsides and power-line cuts, as well as on private land throughout Lebanon.

5 | C-6 Energy

Lebanon's energy future is tied to policies and economic forces at the state, national, and international levels. Most of the City's energy sources are imported from outside of the region, although wood remains an important fuel for many residents. Approximately four percent of the energy demand is satisfied by energy generated within the region (UVLSRPC Regional Plan, 1998). The Lebanon Energy Advisory Committee (LEAC) is

key points | future challenges & opportunities

- As Lebanon faces growth pressures, careful planning and better protection are needed to ensure that the City preserves its important natural resources as it grows as a vital economic center.
- Lebanon needs to act, in concert with the state and federal governments, to prevent air pollution and preserve dark nighttime skies as the City continues to grow and develop.
- Lebanon needs to expand its regulations applying to development on steep slopes to cover the entire City and to address the related issues of ridgeline development and the potential ecological damage caused by blasting.
- Lebanon needs to be actively developing and implementing watershed protection plans, particularly for the Mascoma River (the City's water source), in coordination with neighboring communities and the state.
- Lebanon needs an open space plan to identify key open space resources, and identify strategies and techniques to maintain open space for future generations.
- Lebanon needs to seek out the information and expertise needed to more effectively protect plant and animal species, and improve the quality of habitat on public lands.
- City government should lead by example through its efforts to conserve energy in City operations and increase use of renewable, local energy sources.
- There should be greater coordination among City departments, staff and volunteers to increase the effectiveness of Lebanon's efforts to protect natural resources.



currently developing an energy master plan, which will address energy conservation as well as other related measures.

5 | D **Future Challenges & Opportunities**

5 | D-1 **Impact of Development on Natural Resources**

Lebanon's natural resources have degraded over time as the City has grown and changed. Many formerly open fields, including some of the Northeast's richest soils, have been covered with shopping centers, houses, and other types of development. Some of the City's most significant floodplains and wetlands were drained or filled in before the advent of protective regulations, and development pressure continues to affect these resources. In the uplands, wooded ridges and hillsides are being fragmented by roads and rural development. Increasing vehicle emissions, fertilizers, pesticides, road salt and other pollutants threaten air and water quality even in rural areas of Lebanon.

Most current environmental impacts result from development, often driven by regional pressures. New parking lots, stores, Offices, industries, medical facilities and services attract more people and stimulate demand for more development. Small environmental impacts may not be immediately visible and dramatic, but over time the impacts accumulate and can be damaging in the long term. As Lebanon faces growth pressures, careful planning and better protection are needed to ensure that the City preserves its vital natural resources as it grows as a vital economic center. Without proper protection through local regulations, incentives and educational efforts, the City could lose the very assets that have made this community a desirable a place to live and do business.

5 | D-2 **Air and Sky**

5 | D-2a **Air Pollution.** Local sources of air pollution, such as emissions from vehicles and industries, and dust from construction sites, should be monitored by the City as well as by the state. The Clean Air Act of 1970 directs the states to regulate air pollution under guidance from the federal Environmental Protection Agency. When air quality in a region declines and causes an area to be in non-attainment (non-compliance), the Clean Air Act requires that pollution-control programs be implemented to reduce the pollution concentrations to within allowable limits. Now that portions of New Hampshire no longer meet Clean Air Act standards, the City cannot take clean air for granted. Detailed information on air quality, including regulations and solutions, can be obtained from the NHDES Division of Air Resources.

5 | D-2b **Outdoor Lighting.** Outdoor lighting installations should be designed to provide the minimum light levels needed for adequate visibility while avoiding over lighting and its associated problems such as glare, sky glow and light trespass. For instance, down-lit fixtures, cut-off lighting, timers and motion detectors can be used.

5 | D-3 **Landform**

5 | D-3a **Steep Slopes.** To avoid adverse impacts from development on steep slopes, the City should consider expanding the existing steep slope overlay district to apply appropriately to all zoning districts. The steep slope district

should be reviewed and modified as needed to incorporate appropriate measures such as performance or review process techniques.

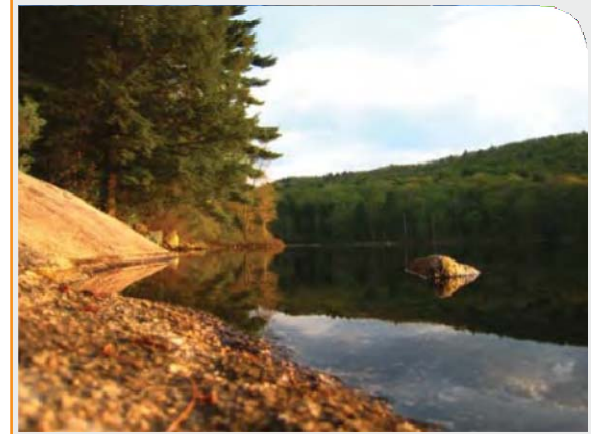
- 5 | D-3b **Ridgelines.** As recommended in the 1986, 1993 and 2006 Lebanon Master Plans, a ridgeline conservation overlay district should be incorporated into Lebanon's Zoning Ordinance, in order to ensure proper siting of development that would minimize impacts to the existing landscape and scenic qualities of the ridgelines. Adopting a ridgeline conservation overlay district would assist with maintaining the functions and values of these ecologically sensitive areas. The overlay district could include regulating the siting and design of telecommunications towers, wind turbines and associated facilities.
- 5 | D-3c **Bedrock and Blasting.** Examining the effects of blasting on groundwater, as well as on the viewsheds of Lebanon, should be part of the development review process. Ideally, City staff should confer with experts in hydro-geomorphology. The New Hampshire Department of Environmental Services Geology Unit is actively mapping bedrock geology in partnership with municipalities, and also is interested in conducting a comprehensive study of the effects of blasting on water quality and quantity. The City should participate in these projects.

5 | D-4 Water Resources

- 5 | D-4a **Watershed Protection.** As Lebanon is dependent on the Mascoma River for its drinking water and is the most populous community in the watershed, it would make sense for the City to take the lead in planning efforts for the watershed. The development and adoption of a water resources management plan would lay the groundwork for appropriate ordinances to protect Lebanon's surface and ground waters. Elements of the plan should include techniques or methods to address water quality degradation resulting from non-point source pollution, erosion, runoff, etc., such as:
- Implementing measures into the development review process (e.g. Low Impact Development)
 - Limiting the amount of impervious areas
 - Preserving vegetated stream buffers
 - Reducing herbicides, pesticides and road salt near waterways.

Other elements could include landowner education and outreach, a water quality testing program, waterway clean-up events, aquifer and source water overlay districts, and land conservation techniques (e.g. easements, acquisition). The Water Treatment Plant sub-watershed would be the logical starting point for defining the scope of a water resources management plan but Lebanon residents would benefit from having a plan include all of the community's water resources.

Any watershed protection efforts in both the Mascoma River and Connecticut River watersheds should be coordinated with other watershed communities. Continued participation in the Upper Valley Lake Sunapee Regional Planning Commission, the Mascoma River Local Advisory Committee, and Connecticut River Joint Commission's (CRJC) Upper Valley River Subcommittee will offer opportunities for regional information sharing and collaborative solutions to common challenges. Partnerships with private organizations to achieve water resource objectives can be beneficial, as evidenced by examples such as the Lebanon Rotary Club's String of Pearls project, which seeks to preserve some of the remaining green areas along the Mascoma River.



boston lot lake



wetland outlines south of lebanon high school

A comprehensive community campaign to clean up Lebanon’s waterways would enhance water quality and scenic resources. As these natural assets improve, the City will benefit greatly from increased property values and quality of life. The Lebanon Rotary Club has performed a considerable public service by organizing a biennial clean-up of the Mascoma River. This event could be augmented by other local civic, neighborhood, or school groups, and supported by the City, to bring further attention to the river.

5 | D-4b **Wetland Conservation.** The Lebanon Zoning Ordinance does have a wetlands conservation overlay district to prevent the destruction of wetlands. Designation of wetlands as “prime” is an added layer of protection in the state dredge-and-fill permitting process. *Buffers for Wetlands and Surface Waters: A Guide for New Hampshire Municipalities* (Audubon Society of New Hampshire and New Hampshire Office of State Planning, revised 1997) recommends 100 feet as a reasonable minimum buffer width to protect the values of wetlands under most circumstances. The Lebanon Conservation Commission has historically promoted the idea of including a variable wetland buffer within the Lebanon Zoning Ordinance.

5 | D-5 Land Resources

5 | D-5a **Open Space Planning.** Since responsible growth is so important to the City’s livelihood and vitality, it is critical to identify and implement planning techniques that encourage respectful development while preserving important landscapes. An open space plan should be developed to identify key open space lands; natural, scenic, and historic resources; as well as important strategies and tools for implementing the plan. A primary goal for developing this plan should be to maximize the size of connected open space areas in order to improve possible public access, and to conserve and prevent further fragmentation of wildlife habitat. Without proactive techniques in place to identify key parcels before a landowner makes the decision to sell or develop a parcel, Lebanon’s rural landscapes will remain at risk. The other important step in this process is to conduct an outreach and education program, so that members of the public can learn more about and participate in the benefits of land conservation and the resources available.

A forward-looking land conservation program, based on an open space plan, should be generated to purchase or accept gifts of property, conservation and public access easements, and development rights from willing landowners for important properties. Priorities for selection of these properties should come from the open space plan but should include:

- Drinking water supply protection lands
- River & lake access, Significant Ecological Areas from the NRI, greenways, and key wildlife corridors & crossings
- Geologic features such as Rix Ledges, Devil’s Kitchen, Tipping Rock, and Granite Flumes

The Land and Community Heritage Investment Program (LCHIP) could be one source of funding for high-priority projects, if the state legislature continues to fund it. Money received from Land Use Change Tax penalties (for removing land from the New Hampshire Current Use program) should continue to be used to conserve new lands, as well as to maintain previously acquired ones. The City should continue to dedicate 100 percent of its Current Use penalty receipts to the Lebanon Open Space Trust fund, as recommended in Land Use chapter of this Master Plan.

Besides purchasing open space or protective easements, there are many innovative land use controls that can be used to preserve more open space areas, such as conservation design and transfer of development rights. Generally speaking, conventional subdivision design creates residential developments in which all land is divided into house lots and streets, with the only open space typically being the yards around single-family homes. On the other hand, conservation design provides greater flexibility for the design of a development to encourage the preservation of valuable open land and natural features and to promote more efficient use of land, community facilities, services and utilities. As a result, the same number of homes can be built in a less land-consumptive manner. This technique allows the balance of the property to be permanently protected and added to an interconnected network of community green spaces. Conservation design is an equitable way to balance both conservation and development objectives.

As recommended in the Land Use chapter, the City should require conservation design where appropriate with incentives to ensure that conservation design is a financially favorable alternative for developers. The chapter also recommends that the City apply conservation design principles to industrial and commercial development.

The City should also study transfer of development rights and other methods to protect important open space. These innovative techniques could help the City attain a pattern of development that matches the overall vision of this Master Plan. The timely development of a comprehensive open space plan will provide a guide for this process, by helping the City identify important natural, historical, and cultural features that it wishes to preserve, and prioritize its opportunities.

As potential trail linkages are identified, the City should work with willing landowners, land trusts, and other conservation and recreation groups to acquire trail easements when feasible. The City also should negotiate with developers of large or strategically located parcels to protect existing trails and/or set aside additional land, if feasible, for a trail system or connection.

City-owned conservation properties should continue to be guided by management plans developed by professional land stewards, with policy oversight from the Lebanon Conservation Commission. Implementation of management recommendations could be achieved by a combination of professional staff and volunteer assistance, with outreach to neighbors of these properties.

5 | D-5b **Working Lands.** Since agriculture is an important contributor to Lebanon’s scenic, historic, and cultural quality of life, incentives should be created or continued to ensure that farmlands will remain open and viable in the future. For instance, the City can allow flexibility in regulations and policies to accommodate the unusual needs of agricultural businesses, such as expanding agricultural uses in some zoning districts. The community also should continue to actively support the Lebanon Farmer’s Market and marketing of Lebanon’s agricultural resources, and target with farmers the fiscal, regulatory, and practical obstacles to sustaining local agriculture.

In conducting silvicultural activities, sound forestry practices should be followed, especially on ridgelines, steep slopes, and adjacent to waterways, to prevent sedimentation and erosion that contribute to the degradation of water quality. The New Hampshire Division of Forests and Lands has a publication entitled *Best Management Practices for Erosion Control on Timber Harvesting Operations in New Hampshire* (2000) that is a good reference for anyone working in the woods, along with *Good Forestry in the Granite State: Recommended Voluntary Forest Management Practices for New Hampshire* (2010).

5 | D-6 Plants and Animals

- 5 | D-6a **Urban Forests and Greenways.** As people become more aware of the benefits of trees, they realize the importance of maintaining the health of existing trees and the desirability of planting new ones. It is very important that native and site-suitable species be planted in the right places, in order to keep maintenance costs low and reduce impacts from natural hazards such as ice storms.

The City may want to consider contracting with a forester or developing a volunteer tree board to inventory important trees, especially those in the Lebanon and West Lebanon downtowns, and to develop a tree preservation plan outlining proper care and maintenance. Alternatively or additionally, the City could re-create the tree warden position to encourage tree-planting in municipal rights-of-way. Such an effort might even produce valuable input for greening locations such as the Route 120/I-89 (Exit 18) interchange. Public education is also important in regards to timber and woodlot management, as well as residential trees. To this end, the City should continue observing Arbor Day and maintain its Tree City USA status.

- 5 | D-6b **Biodiversity.** The NRI offers the basis for proposing changes to zoning, site plan, and/or subdivision regulations so as to minimize any adverse impacts from new development. Several state agencies and other organizations can offer the City practical, research-based suggestions in this regard, such as the NHDES interdepartmental fact sheets on minimizing development impacts on wildlife, and on habitat-sensitive site design and development practices. When large parcels are developed near important natural areas, existing wildlife corridors should be identified and preserved, including road crossings and fish-friendly culverts constructed with the advice of wildlife biologists. Conservation design and other innovative zoning techniques (elaborated upon in the Land Use chapter of this Master Plan) might also be utilized to provide or protect habitat. The NRI can serve as the foundation for an Open Space Plan, which in turn will provide guidance and specificity as to maintaining the existing biodiversity that Lebanon enjoys.

- 5 | D-6c **Invasive Species.** It is time to inventory infestations of invasive species in Lebanon, and develop plans to control these plants and increase awareness of the damage that can be done when they are left unchecked. City workers and private landowners and contractors alike should follow best-management practices for removal and disposal of invasive species. Roadside mowing, for example, should be done prior to seed development and the blades should be scrupulously cleaned before leaving the mowing site.

5 | D-7 Energy Conservation

While the City is limited in the influence it can have on a global scale, it can exert some control over local energy choices. LEAC's Energy Master Plan, currently being written, will detail Lebanon's energy use, choices and priorities. The City should make a shift toward greater local reliance on renewable resources such as geothermal, solar, wind, clean wood, and hydro power. Examples worth serious consideration include converting public streetlights to solar power, recovering methane from the Lebanon landfill, and installing wood-chip-fired boilers or geothermal heat pumps in new public building projects such as new schools. Incentives should be given to large commercial projects for doing the same.

City government can provide leadership to the community by reducing its own energy use while reducing budget costs over the long term. Many energy conservation upgrades were made throughout City Hall several years ago, following an energy audit by an independent firm. Audits should be periodically carried out for all

City buildings and operations. The City also can play an important role in encouraging energy conservation for transportation, by encouraging cluster development on residential, commercial, and industrial sites. Mixed-use development, as well as encouraging alternatives to automobile use, will help decrease multiple automobile trips and save energy. In addition to directing development patterns, the City can encourage energy-efficient site designs. For instance, situating buildings with southern exposure, as well as planting trees for winter wind buffers and summer shade, can effectively reduce energy costs over the long term.

5 | D-8

Coordination

Development and growth are inevitable and welcome, but it is imperative that the City direct development in order to preserve its open land and scenic resources. This can best be achieved through a comprehensive municipal open space plan; coordinated zoning, site plan, and subdivision regulations; and the Capital Improvement Plan.

The Conservation Commission and related staff play a pivotal role as stewards of the City's natural and scenic assets and, along with the Recreation Commission and related staff, its recreational assets. As volunteers, Conservation Commissioners have an important job to do with limited time and resources. Accordingly, City staff and Conservation Commission members should continue to keep one another apprised of ongoing opportunities for training and education, so that they can be better-informed and more effective decision-makers. Communication should be improved among the City's boards, departments, and citizens, to ensure that the policies and actions of one body are not inconsistent with those of others, and that Lebanon's treasured natural resources are not compromised. Efforts to partner with local and regional organizations, neighboring towns, and state agencies (along with private landowners themselves) also should continue on behalf of conservation.

Through successive master plans, land conservation efforts, municipal elections, partnerships with the private sector, and other processes, the people of Lebanon have sustained an interest in protecting the City's natural resources and scenic character. The Conservation Commission should continue to engage the public in conservation, with multiple partners in the schools, in scouting and other service organizations, in recreational contexts, and in neighborhoods by sponsoring community educational events, outings, workdays, and celebrations.

Outcomes & Strategies

OUTCOME 1 Seek a balanced approach to protecting the City's natural resources while accommodating anticipated growth and maintaining the City's role as a regional center.

STRATEGIES	ACTIONS
1 Guide development into existing areas as designated in the Land Use chapter to protect outlying rural areas and open space lands.	1 Develop an Open Space Plan, with public participation, that will inventory natural and cultural features, and recommend green space corridors for continued wildlife habitat and for the benefit of residents.
2 Guide new development away from wildlife habitat areas that have been identified in the Natural Resources Inventory.	2 Explore voluntary land protection measures on Tipping Rock, Rix Ledges, Devil's Kitchen, and Granite Flumes to protect the unique geological features of those areas.
3 Investigate innovative land use regulations such as transfer of development rights to preserve open space, natural resources and important wildlife habitat and corridors, taking into consideration the rights of property owners and abutters.	3 Apply for Land and Community Heritage Investment Program (LCHIP) and other funding sources for land conservation projects.
4 Require open space or conservation design for all ecologically important land.	4 Adopt a policy whereby the Recreation Department and Conservation Commission as well as the School Board are notified when the City acquires or decides to sell property, or when land is offered to the City.
5 Purchase easements or property for conservation throughout the City, particularly in critical habitat areas as identified in both the Natural Resource Inventory and Open Space Plan.	5 Authorize the Conservation Commission to periodically review all city-owned property and to recommend what land should have conservation easements.
6 Encourage the creation of a private conservation council to act with no personal benefit to acquire easements or purchase property in situations where the City may not be able to respond quickly to a priority parcel because of legal or other constraints.	6 Conduct education and outreach to members of the public about the benefits of land conservation and options for conserving land.
7 Develop a land acquisition/conservation easement program to protect scenic views.	7 Create incentives in the Zoning Ordinance for agricultural businesses and expand the importance of maintaining and increasing agricultural activity within the City.
8 Include City gateways in open space planning.	8 Contract with a licensed forester to work with the Conservation Commission in developing forest management plans.
9 Support efforts to establish more scenic roads.	9 Adopt and implement appropriate logging guidelines to encourage best management practices (BMPs) for logging in the city-owned forested areas.
10 Discourage exterior area illumination of prominent physical features and landscapes that dramatically impact the nighttime landscape.	10 Place protective third-party easements on city-owned land with important habitat areas.
11 Review lighting design elements of development proposals to ensure that adequate minimal lighting is planned, but over lighting is avoided.	11 Work with the NH Department of Transportation to develop landscaping plans for Route 120 between Exit 18 and Hanover Street.
12 Require the use of renewable energy in heating and cooling systems in new construction of public buildings.	12 Create a scenic corridor overlay district to protect the City's highway corridors from inappropriate development and visual blight, and landscaping standards for all major entry corridors to the City.
13 Continue to support land use patterns that promote alternatives to single occupancy vehicles, such as public transit, park-and-ride facilities, sidewalks, and bikeways/bike paths.	13 Develop recommended landscaping guidelines for distribution to landowners, regarding such issues as the protection of existing trees and landscaping, choosing plant species native to the region, and planting to screen utility facilities and equipment.
14 Encourage the use of energy conservation measures through site plan review, such as orienting buildings to take advantage of natural light and heat, and providing vegetation for summer shading and wind buffers.	14 Adopt a ridgeline ordinance to protect ridgelines from poorly sited development and consider including hillsides and wildlife corridors to lowlands
15 Continue to encourage mixed-use growth centers rather than strip-type sprawling development patterns.	15 Adopt lighting standards that minimize sky glow and glare.
16 Encourage and support transportation alternatives to single-occupancy vehicles, including mass transit, pedestrian and bicycle paths and facilities, ride-sharing, etc.	16 Develop and approve a wind turbine ordinance to enforce the appropriate siting and design of wind turbines.

OUTCOME 1

Seek a balanced approach to protecting the City's natural resources while accommodating anticipated growth and maintaining the City's role as a regional center.

STRATEGIES

- 17 Encourage recycling citywide, including in city-owned facilities.
- 18 Encourage the use of renewable energy resources and provide information on these resources to residents on the City website and in the City newsletter.

ACTIONS

- 17 Develop and approve a telecommunications ordinance to enforce the appropriate siting and design of telecommunications towers.
- 18 Conduct periodic energy audits of all City buildings, infrastructure (including streetlights) and operations to identify areas of energy waste and recommend cost-effective energy conservation measures.
- 19 Establish a citywide recycling program to include periodic household hazardous waste days.

OUTCOME 2

Maintain the healthy, functioning natural systems that contribute to the City's quality of life and economic vitality.

STRATEGIES

- 1 Enforce stormwater and erosion control standards and conditions during and after construction, perhaps by requiring a bond, to ensure that there is no increase in surface water flows after development.
- 2 Make impervious surface reduction a goal of parking policies and regulations in the Zoning Ordinance.
- 3 Educate landowners regarding best management practices, such as proper household hazardous waste disposal, recycling, and composting through materials disseminated at City Hall, and through the City website and newsletter.
- 4 Acquire or seek donations of parcels, conservation easements, development rights, and rights-of-way adjacent to important bodies of water for protection of public access, water quality, public water supplies, floodplains, wetlands and wildlife habitat.
- 5 Support the Rotary Club's biennial clean-ups of the Mascoma River and encourage other groups to adopt other water bodies for cleanup.
- 6 Seek outside funding or volunteers to clean up sites in coordination with the regional planning commission.
- 7 Continue alliances with neighboring communities and regional organizations, such as the Mascoma Watershed Conservation Council, to foster cooperation in protecting water bodies and watersheds.
- 8 Develop and disseminate public education materials regarding the importance of protecting our water supply sources.
- 9 Investigate and consider utilizing recent innovations in stormwater management and groundwater recharge systems (ex. low-impact development) in critical locations where more traditional techniques prove inadequate.
- 10 Develop and disseminate public education materials regarding the importance of protecting our water supply sources.
- 11 Investigate and consider utilizing recent innovations in stormwater management and groundwater recharge systems (ex. low-impact development) in critical locations where more traditional techniques prove inadequate.

ACTIONS

- 1 Review site plan and subdivision regulations and update with the following components incorporating standards from the Stormwater Management and Erosion and Sediment Control Handbook: erosion/ sedimentation control; on-site stormwater treatment; proper road design; minimize impervious surfaces.
- 2 Develop and adopt a variable width buffer zone along select streams and rivers.
- 3 Develop and adopt a Water Resources Management Plan.
- 4 Create source water overlay for existing drinking water sources based on the Model Rule for the Protection of Water Supply Watersheds and the 1999 Mascoma Watershed study.
- 5 Develop and adopt an aquifer protection overlay district to more strictly regulate development adjacent to potential drinking water sources.
- 6 Conduct land use and environmental constraints studies of the Mascoma River, Stoney Brook, Hardy Hill Brook, and Blodget Brook corridors to guide appropriate development in order to protect drinking water supplies.
- 7 Provide ditches, treatment swales, detention ponds, and catch basins that will prevent road run-off and accidental spills from discharging into water bodies, especially public water supply sources.
- 8 Develop an ordinance more stringent than that developed by Federal Emergency Management Agency to restrict development or filling in of floodplains to provide flood storage, water quality protection, and wildlife habitat adjacent to waterways.
- 9 Request updated flood hazard mapping by FEMA, as recommended in the 2002 Connecticut River Corridor Management Plan.
- 10 Inventory and legally designate prime wetlands for special protection.
- 11 Adopt a variable width wetland buffer zone, as appropriate, based on functions and values as recommended by *Buffers for Wetlands and Surface Waters: A Guidebook for NH Municipalities*.

OUTCOME 2 Maintain the healthy, functioning natural systems that contribute to the City’s quality of life and economic vitality.

STRATEGIES

- 12 Continue educational programs to promote public awareness of the conservation lands, appreciation of their natural features, and appropriate activities on those lands.
- 13 Coordinate local volunteers to continue the care, maintenance, promotion, and appropriate use of conservation lands.
- 14 Continue to plan and publicize a program of nature walks in the City’s conservation lands to enhance public appreciation of them.
- 15 Work with local land trusts to acquire trail easements when feasible, with an eye to linking to existing trails to provide a comprehensive network.
- 16 Negotiate with developers to protect existing trails and/or set aside additional land for a trail system.
- 17 Encourage volunteer help and hire a Park Ranger to implement park education (such as Adopt-a Park and Junior Ranger programs) and to build and maintain trails.
- 18 Investigate and recommend appropriate measures to ensure handicapped accessibility on conservation lands where feasible.
- 19 Continue participation in the “Tree City USA” program to call attention to the City’s natural resources.
- 20 Continue to celebrate Arbor Day to raise awareness of the importance of trees to all residents.
- 21 Encourage Dartmouth College to continue working with the City through the Landmark Lands Committee to inventory and evaluate Dartmouth College Lands before development is proposed.
- 22 Protect existing wildlife corridors, such as the one across Route 120 and Mt. Support Road, with guidance from wildlife biologists.
- 23 Educate landowners about the importance of preserving wildlife habitat on their own land.
- 24 Raise awareness of invasive species by sponsoring educational lectures and field trips.
- 25 Continue formal cooperative planning among adjacent communities through the Upper Valley Lake Sunapee Regional Planning Commission and other organizations like the Mascoma Watershed Conservation Council.
- 26 Take the lead on developing a Mascoma Watershed Plan to protect our drinking water source.
- 27 Identify opportunities for training and information sharing on natural resource issues for the Conservation Commission, Planning Board, and other volunteer boards.
- 28 Identify opportunities for training and information sharing on natural resource issues for the Conservation Commission, Planning Board, and other volunteer boards.
- 29 Encourage City board members & administration to pursue on-going dialogue in areas of mutual interest.
- 30 Continue to work with the School Board to provide a curriculum within the schools that involves education about and access to the waterways within Lebanon, and the City’s conservation lands.

ACTIONS

- Explore the expansion of the Steep Slope Overlay District. 12
- Hire a licensed forester to develop management plans for city-owned conservation areas together with the Society for the Protection of New Hampshire Forests, UNH Cooperative Extension, and other similar organizations. 13
- Update maps of existing trails and make them available to the public. 14
- Identify selected Class VI Roads as part of the green infrastructure trail system. 15
- Resume and publicize the “Wild about Lebanon” program and its regularly scheduled volunteer-led informational walks to City parks. 16
- Identify parks and recreational facilities through publicity and signage that includes a brief history of who donated the land, interesting facts about the property, and existing trails and/or flora in the area. 17
- Develop and adopt an urban tree ordinance to protect urban and residential trees. 18
- Develop master landscaping plans for the central business districts and gateways, identifying and recommending appropriate street tree and other planting opportunities in consultation with a Garden Club and/or a landscape architect. 19
- Develop a wildlife habitat overlay zone for critical habitat areas, including deer yards, bear habitat, vernal pools and wildlife corridors. 20
- Inventory areas that have been impacted by invasive species and develop a plan to address these areas. 21
- Hold annual tours of City parks and conservation lands for City Council members and all other City boards. 22
- Eradicate invasive species from city-owned land. 23

6| Economic Development

6|A Vision & Purpose

The City of Lebanon shall promote high-quality economic development that provides safe, healthy working conditions, and rewarding careers and employment opportunities for residents of the City and region. In accordance with the “Residents-First” policy, economic development in Lebanon shall benefit our residents and enhance quality of life in the City. Our economic development strategy shall foster a vibrant and sustainable local economy by:

- Encouraging and attracting enterprises that contribute to the total welfare of the City of Lebanon, while also recognizing Lebanon’s role as an employment center for the Upper Valley.
- Preserving and enhancing the natural and built environment of Lebanon, and promoting a high quality of life for those who live in, work in or visit our City.
- Implementing economic development and redevelopment strategies that do not result in a greater tax burden for City residents.
- Striving to support a mix of businesses from a variety of economic sectors to better protect our local economy from sudden shifts within a single industry and to increase our resistance to economic downturns.
- Adopting land use policies that encourage redevelopment of existing non-residential sites and development of existing lands zoned for non-residential use before extensively developing any additional lands for non-residential use.
- Maintaining the infrastructure needed to support economic development at high service levels, including fostering state-of-the-art communications infrastructure throughout the City.
- Encouraging new non-residential construction and renovation of existing non-residential structures to result in high-quality buildings that can be reconfigured and adapted so that the same structure may serve different purposes over time.
- Supporting a variety of housing options that will allow those working within the City, at all income levels, to also live in the City.
- Understanding that a strong economy requires a well-educated and skilled workforce, and providing educational and workforce training opportunities for residents at all stages of life.

6|B Issues & Priorities

6|B-1 Sustainable Economic Development

Sustainable economic development is more than just increasing the number of jobs, tax receipts and square footage of commercial/industrial space in the City. It means growth that is not driven by depleting our resources, but rather by renewing them. It means growing our economy while also enhancing quality of life in Lebanon and protecting environment quality - making the City an even better place to live for the next genera-



key points | vision & purpose

- Promote high-quality economic development that benefits City residents and enhances quality of life in the City
- Foster a vibrant, diversified and sustainable local economy
- Encourage redevelopment and full use of existing commercial/industrial sites and land before designating additional land for commercial/industrial use
- Provide the infrastructure, housing and education needed to support our desired level of economic development

key points | issues & priorities

- Seek sustainable growth that is not dependent on exhausting local resources to fuel economic expansion
- Maintain a diverse economy that is not dependent on a single large employer or economic sector
- Recognize the importance of the City's quality of life in attracting new firms to locate in Lebanon and in retaining well-educated and skilled workers



tion. Sustainable economic development has a triple bottom line resulting in economic benefits, environmental benefits and social benefits.

Top priorities for sustainable economic development in Lebanon include:

- Redevelopment of under-utilized commercial and industrial sites.
- A more diverse local economy that is not dependent on a single large employer or sector.
- Jobs that pay a livable wage.
- Growth opportunities for existing businesses.

Achieving sustainability will require a proactive approach to economic development. Given Lebanon's role as the economic center of the Upper Valley, the pressure for continued economic expansion will likely remain strong, and for this reason, the City must carefully plan for growth. The community must determine where and how much it will grow, and then it needs to implement strategies to appropriately guide economic and community development. If instead the City takes a passive approach, it may find itself overwhelmed with growth planning challenges and a division among City government, business, and residents that will stall proactive decision-making.

6|B-2 Economic Diversity

As a former milling center, Lebanon needs only to look back its own history to see the danger posed by a local economy dependent upon a single large employer or economic sector. During the past 60 years, the City's economy has become stronger and more diversified. Economic diversity means having both businesses from many different economic sectors and jobs of various levels and types.

The City needs to maintain and enhance economic diversity in order to be better insulated from contraction and downturns, whether within a particular industry or across all sectors. While the performance of a local economy will always be affected by the inevitable ups and downs of business cycles, a diversified economy will experience less dramatic change between the highs and lows.

A diverse economy also creates a variety of employment opportunities. This allows workers to more easily transition between jobs and change careers, remaining employed throughout their working lives without having to relocate to find work. A diverse economy requires a diverse workforce. Increased social diversity creates a more dynamic City and improves residents' quality of life.

Providing infrastructure, housing and educational opportunities can help support a diverse economy. In particular, the City needs an adequate supply of workforce housing and state-of-the-art communications infrastructure if it wants to continue to keep existing businesses and attract new employers.

6|B-3 Quality of Life

Quality of life may seem a somewhat intangible concept, but for many companies it is a key consideration when deciding where to locate. Will the community be a place that employees will want to live? If not, the company may have difficulty attracting and retaining qualified workers or workers may be forced to commute

from more distant communities, particularly if it must compete with other firms for highly skilled or educated employees.

The Upper Valley offers a quality of life that is very desirable - the region's communities have retained their small-town character while adding urban and cultural amenities. Lebanon benefits from the presence of DHMC and the associated health services it provides, as well as Dartmouth College next door in Hanover, which provides residents with access to world-class arts, culture and athletics. Within the City itself, the Opera House is a well-programmed entertainment venue and anchors a burgeoning downtown arts community. Lebanon and neighboring communities have a thriving 'creative economy' that enriches the region. Additionally, the Upper Valley is only a short trip from major metropolitan areas, large tracts of wilderness, and a variety of recreation opportunities including ski slopes and ocean beaches.

6|C Existing Conditions & Trends

6|C-1 Role as Regional Center

Lebanon has historically been and continues to be a regional economic center for the Upper Valley due to:

- Transportation access (proximity to the junction of two interstate highways, a municipal airport and rail service).
- Availability of land and supporting infrastructure for commercial and industrial development and redevelopment.
- A highly regarded medical center, community hospital, academic institutions, and spin-off enterprises.
- Multiple decades of local and regional planning for community and economic development.
- Small-town feel with some urban amenities and conveniences.
- Abundant natural, scenic and historic resources of the City and region.
- Cultural and recreational attractions within the City and region.

Lebanon has remained a regional center while surviving financial panics, industrial collapse, fires, the Great Depression, and the flight of the cotton and woolen mills to the South. In each transition, new businesses have brought new opportunities and new residents. During the 1960s, the fortuitous routing of Interstate 89 and nearby Interstate 91 came just in time to breathe new life into the town after the collapse of the textile industry, making West Lebanon the retail center of the Upper Valley. The new highways also facilitated industrial and commercial business.

Dartmouth-Hitchcock Medical Center's (DHMC) move to Lebanon in the early 1990s, combined with Dartmouth College's role as an innovator in the technological revolution, has resulted in spin-off businesses locating in Lebanon. This has brought a new wave of bright, technically savvy and entrepreneurial people to the City, and is fostering Lebanon's emergence as a biomedical and high-tech hub on the cutting edge of research, innovation and manufacturing.

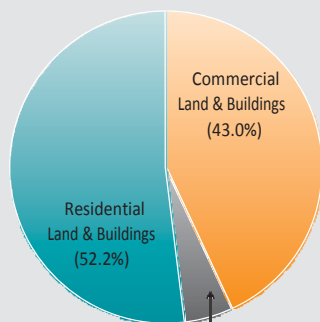


key points | existing conditions & trends

- Lebanon continues to be the economic center of the Upper Valley and currently maintains a diversified economic base.
- Since the 1960s, Lebanon has added more than a million square feet of non-residential space per decade on average and continues to have land available for new development, redevelopment and infill.
- Lebanon's labor force has experienced "full employment" since the mid-1990s and jobs within the City pay wages higher than state and regional averages.
- The supply of workforce housing continues to be a constraint on economic growth in the Upper Valley.

Business	Sector	Employees
Dartmouth Hitchcock Medical		
Center/Hitchcock Clinic	Healthcare services	7,433
Timken	Ball & roller bearings	593
Alice Peck Day	Healthcare services	500
Lebanon School District	Education	377
TomTom	Mapping	316
Hypertherm	Manufacturing	237
City of Lebanon	Municipal	210
Fuji Film Dimatix	Technology	202
Luminescent Systems Inc.	Electroluminescent lighting	187
Thermal Dynamics	Plasma cutting torches	183

lebanon's major employers



2009 percent of local assessed valuation by property type
New Hampshire Department of Revenue Administration

Lebanon currently maintains a diversified economic base including a variety of retail enterprises, healthcare businesses ancillary to DHMC and Alice Peck Day Memorial Hospital, and an industrial base anchored by firms such as:

- Timken (aerospace industry manufacturing ball bearings and rollers)
- TomTom (mapping data)
- Fluent, Inc. (fluid technology)
- Mascoma Corporation (alternative fuels)
- Hypertherm (plasma cutting technology)

DHMC and other major employers in the region, such as Dartmouth College, United States Army Cold Regions Research and Environmental Laboratory (CRREL), and the Veteran's Administrative Hospital have been relatively immune from economic recession. Having these industries in the region benefits the City of Lebanon immensely. They also contribute to the City's economic well-being by attracting other businesses and service industries, which provide further employment opportunities.

6 | C-2 Land and Space for Non-Residential Uses

Lebanon's current zoning includes eight non-residential or mixed-use districts (light industrial, rail access industrial, heavy industrial, general commercial, central business, neighborhood commercial, professional business and medical center). These districts provide opportunities for businesses of various types, sizes and intensities. Most of these districts have either land available for development, or sites suitable for redevelopment or infill.

Lebanon had about 900,000 square feet of non-residential space in 1959. In the five decades since, the space occupied by commercial, industrial, medical, government and other institutional uses has grown to more than 8.8 million square feet. The Lebanon Planning Board has recently approved, or is currently reviewing, approximately 2.5 million square feet of non-residential growth, which is projected to be built out during the next 20 years.

Commercial land uses make up a greater percentage of the tax base in Lebanon as compared to other Upper Valley municipalities. The City's broad tax base results in a reduced tax burden on residential property owners to fund local schools and municipal services.

6 | C-3 Employment and Wages

More than 19,000 people work in Lebanon. Approximately 61 percent of the City's resident workforce is employed in Lebanon (approximately 5,000 people) and more than 13,000 people commute into the City. Lebanon residents, and Upper Valley residents in general, enjoy relatively short commutes with an average travel time to work for City residents that is less than 15 minutes. The ability to live and work in close proximity is one of the factors that contributes to Lebanon's quality of life.

Lebanon has experienced job growth in the service sector, particularly education, health, social services, and retail, during the past 20 years similar to many communities across the country. However, the City has seen employment growth in management, professional and related occupations in recent decades as well. During the 2000s, employment in Lebanon grew by more than 2,600 jobs.

Lebanon's average annual unemployment rate was 3.8 percent in 2009. The unemployment rate in the City has remained below four percent since 1994 despite several intervening downturns in the U.S. economy. A four percent unemployment rate is usually considered "full employment." The unemployment rate in the Lebanon Labor Market Area (LMA) has been the lowest in the state for some time.

Besides the unemployment rates, average weekly wages provide another measure of economic health. The average weekly wage for a private sector worker in Lebanon in 2009 was \$1,048. Jobs in Lebanon are among the highest paying in the region and pay significantly better than the state average. Higher wages in Lebanon and the Upper Valley may be attributed in part to Dartmouth Hitchcock Medical Center and Dartmouth College, both of which directly pay relatively high wages and indirectly generate high-paying spin-off business and industry.

6 | C-4 Housing

Economic growth is dependent upon housing growth, particularly workforce housing. For more than a decade, several major employers in the Upper Valley have been expressing a need for additional workforce housing opportunities, and they have been working with organizations such as the Upper Valley Housing Coalition, Habitat for Humanity, and Twin Pines Housing Trust to find solutions. Although Lebanon has experienced approximately 16 percent housing unit growth during the 2000s, the City still may not be keeping pace with the demand resulting from both the continued rate of growth in the non-residential sector, as well as past historical growth rate disparities between non-residential development and housing development.

Without an adequate supply of housing affordable for their workers, employers can experience challenges in both retention and attraction of employees. For employees, the shortage can result in the need to seek housing further away from the employment center, increasing commutes and associated adverse affects on the environment and transportation network.

In 2011, the Upper Valley Lake Sunapee Regional Planning Commission initiated an effort to analyze housing availability in the Upper Valley, which will be an update to the 2002 Upper Valley Housing Needs Analysis report. When complete, this study should provide a clearer picture of how well the region is doing in meeting the housing needs of its workforce and what actions will be needed in the future to maintain an adequate supply of workforce housing.

6 | D **Future Challenges & Opportunities**

6 | D-1 Sustainable Economic Development Strategy

Lebanon should develop a proactive strategy, identifying the community's economic assets and what types of businesses it wishes to encourage. With a strategy in place, the City should then selectively recruit and/or

key points | future challenges & opportunities

- Lebanon needs a sustainable economic development strategy to guide City efforts to recruit and support new businesses.
- Efforts to revitalize the central business districts should continue so that they remain economically viable.
- Economic development efforts should focus on redevelopment of low-density, under-utilized and/or inefficiently developed commercial and industrial sites, particularly along Route 12A and the Miracle Mile.
- Lebanon must preserve its quality of life, which is a key component of the City's economic success.
- The City must carefully consider all proposed expansions of public services and infrastructure. The City's economic development strategy should not increase residents' tax burden to facilitate economic development.
- To remain economically competitive, Lebanon's businesses and residents must have access to state-of-the-art communications infrastructure and technology.
- The Lebanon Airport is a key asset that needs to overcome financial challenges.



support new businesses that can help the City attain its goals. The City of Lebanon must evaluate how much growth is sustainable; certain levels and types of new development could cause unforeseen changes to community character, infrastructure, and the tax base.

It is essential to maintain a coordinated, respectful and cooperative working relationship with current City and regional enterprises, area economic development agencies, regional planning commissions, chambers of commerce, state agencies, and other concerned private and public sector entities that encourage managed growth. The City could consider expanding its Planning Department's mission to include a more active role in decisions related to economic development.

Technological advances have become a driving force - possibly the driving force - in the economy. New jobs in the "thoughtware" sector include computer software, education, engineering, telecommunications, medicine, and the entrepreneurial, creative economy realm. In order to foster new economic opportunities in this sector, Lebanon must support high-speed digital capability (see Section D-5), keep up with ongoing technological advances, and invest in the labor force through support for continuing education and training.

6 | D-2 Central Business Districts

In spite of competition from the 12A commercial area, both West Lebanon Central Business District and the Lebanon Central Business District continue to see reinvestment and revitalization.

Lebanon's downtown pedestrian mall is now the home to many small professional and service businesses, restaurants and retail shops. These businesses, in combination with Lebanon College's downtown campus, have made the mall a thriving place to visit and shop. Colburn Park is an active place in the summer with the farmers' market and summer concerts, and is a great place for families to gather. The downtown Opera House and AVA Gallery are cornerstones of the City's arts scene, bringing people downtown and supporting surrounding restaurants and shops.

West Lebanon Village has also shown improvement over the recent years. The anchor of the village is the new Kilton Library. New businesses have arrived and current ones have expanded. Restaurants have continued to bring traffic to the area. The recently approved River Park project, just north of the village, will bring research labs, Office space, associated retail and housing.

The City should encourage mixed uses of structures in both CBDs, for instance combining ground floor storefronts with upper-story residential units. Collocating compatible professional, residential and commercial uses encourages people to live where they work, fostering a vibrant downtown and healthy local economy.

6 | D-3 Redevelopment

As Lebanon grows, public services and infrastructure must be expanded cost effectively. Many of the impacts of such growth can be reduced by directing development toward existing built-up areas, which are already served by existing municipal services and infrastructure.

Inefficiently developed properties, for example, on Route 12A and the "Miracle Mile," (Mechanic Street/Route 4) represent some of the best opportunities for redevelopment in the City. Existing developments should be

evaluated to determine creative solutions for redevelopment (the plans proposed by a Dartmouth College architectural class several years ago could serve as a starting point). Many developed parcels and parking lots could be more intensely redeveloped with multi-use structures, multi-story buildings, shared and structured parking, and shallow setbacks from the roadway. Implementing access management retrofit plans on Route 12A, Miracle Mile, and Mechanic Street, as discussed in the transportation chapter of this plan, would be the first step in redevelopment efforts along with allowing flexibility of the parking requirements to meet the needs of the applicant and the traveling public.

When businesses expand, contract or close, they leave behind commercial and industrial space that can be redeveloped. Although such properties are usually privately owned, it is in the interest of the City to see that these locations are redeveloped in ways that are compatible with Lebanon's Master Plan. Among the desired features are the following:

- Reconfiguring space to maximum density, for example, building up (higher - to appropriate scale) when possible, using underground and shared parking, and reducing building setbacks.
- Integrating residential and workforce housing near commercial, Office, educational, research, medical, and light industrial facilities.
- Constructing sidewalks and bus stops, and providing landscaping.
- At riverfront properties, observing setback and water quality requirements, while taking full advantage of the aesthetic potential, for example, siting restaurants, residential apartments, and Offices to face the river, rather than backing onto the river.

6 | D-4 Quality of Life

Numerous studies on business location decisions have indicated that quality of life plays a key role in corporate decision-making. One of the greatest strengths of Lebanon's economy is that people like to live and work here. If Lebanon's historic, educational, environmental, scenic, recreational, and cultural assets are diminished or lost, then the City could suffer economically in the long run.

Lebanon's economic development strategy should support and strengthen the City's role in the creative economy, cultural and heritage tourism, and recreational sectors. More importantly, it should seek to balance its growth and development with protection of natural, scenic, and historic resources. Current work towards a Zoning Ordinance revision is addressing these goals of compatibility and sustainability.

6 | D-5 Public Services and Infrastructure

As Lebanon continues to grow, City government will continue to experience pressure to expand and extend public services and infrastructure. When making those decisions, the City needs to consider the cost to current residents and the impact on the natural environment. In accordance with the "Residents-First" policy, growth and economic development must not degrade the City's quality of life. The City should be seeking economic development that does not increase City taxes. It must be recognized, however, that public services and infrastructure will have to be maintained and expanded as Lebanon grows. Many of the undesirable impacts

of growth can be reduced by directing development toward existing built-up areas already served by public services and infrastructure.

One means of limiting the demand on the water supply and wastewater treatment systems would be to establish an urban services boundary, beyond which such utilities would not be expanded. The establishment of such a limitation would permit the City to focus development in a more concentrated area. The City should also consider expanding the use of impact fees to finance infrastructure associated with new development and consider working with the state legislature to establish a City sales tax. To expand its ability to generate revenue, the City should evaluate any means that would help offset the impacts of commercial development without negatively influencing business or commerce.

6 | D-6 Technological Advancement

Residents, businesses, and institutions increasingly depend on the Internet and electronic communications. Businesses of all sizes find a digital presence valuable, if not essential. In order to ensure that businesses in Lebanon will remain competitive, they must have access to dependable, affordable, high-speed digital services. Such services should be available in all parts of the City, to enable residents to conduct home-based businesses and to promote telecommuting. This increased digital presence will also serve to aid in the promotion of training and education through “webinars” and other professional development tools.

With current technology, wired broadband is faster and more reliable than wireless. The most significant impediment to bringing wired high-speed digital service to all corners of the City is ownership and control of the poles. Because the poles are privately owned, customers are limited to the providers currently on the poles. Moreover, private-sector companies often balk at providing high-speed digital service to rural areas because they cannot make back their return on investment within their typical three-year time frame.

Lebanon should advocate that high-speed digital services be available throughout the Upper Valley, so that residents of nearby towns who are employed in Lebanon have the option of telecommuting, which would reduce congestion on Lebanon’s roads.

6 | D-7 Lebanon Municipal Airport

Lebanon Airport is a key transportation asset, valued by the region’s many businesses and institutions, as well as by area residents attracted by the recent efforts of the City and Cape Air to expand scheduled airline service. However, passenger enplanements or “boardings” during the 2000s declined in comparison with the 1990s, straining the ability of the airport to limit the financial support received from the City’s General Fund.

During the Master Plan process, residents expressed the desire that the current status of the Lebanon Municipal Airport should change in one direction or the other; either become self-sufficient as a commercial airport providing scheduled flights for the general public, or convert to a general aviation airport. The scheduled 2012 completion of the Airport Master Plan, including an “Airport Summit” event will further illuminate future options or direction for the airport.

Outcomes & Strategies

OUTCOME 1 Seek sustainable growth that is not dependent on exhausting local resources to fuel economic expansion.

STRATEGIES

- 1 Encourage City government to take a more organized and active role in promoting sustainable economic development.
- 2 Promote and retain high quality employment opportunities.
- 3 Continue the progress of revitalizing the City's two Central Business Districts.
- 4 Work with civic associations to engage business owners and generate citizen interest and commitment to the downtown areas.
- 5 Support the revitalization, infill, and increased mix of uses in existing non-residential, locations.
- 6 Seek a way for Lebanon Airport to pay for itself while better serving the needs of residents and businesses, both in Lebanon and throughout the region.
- 7 Continue efforts to expand regional and national passenger connections to and from Lebanon Airport.

ACTIONS

- 1 Develop a proactive strategy for sustainable economic development that identifies the City's economic assets and what types of businesses Lebanon wishes to encourage.
- 2 Recruit and support businesses in accordance with the City's sustainable economic development strategy.
- 3 Explore innovative financing techniques for building structured parking in the West Lebanon Central Business District.
- 4 Evaluate the boundaries of the Central Business Districts.
- 5 Examine existing non-residential areas to identify opportunities for more intensive redevelopment or infill.
- 6 Continue to work with the Regional Planning Commission to develop and maintain an updated inventory of non-residential sites and buildings to facilitate expansion and relocation of businesses.
- 7 Review and amend the City's Zoning Ordinance as needed to encourage more intensive redevelopment of existing residential and non-residential areas and to discourage development in undeveloped areas.
- 8 Establish an urban services boundary for water and sewer.
- 9 Develop an impact fee schedule to support expanded infrastructure associated with new development.
- 10 Evaluate the cost of ending commercial service and, if warranted, convert Lebanon Airport to serve general aviation only. If passenger enplanements fail to increase significantly.

OUTCOME 2 Maintain a diverse economy that is not dependent on a single large employer or economic sector.

STRATEGIES

- 1 Make high-speed digital services available throughout Lebanon.
- 2 Continue to encourage private companies to add high-speed digital lines to under-served locations within the City or explore alternatives via regional efforts to bring broadband to the Upper Valley.
- 3 Encourage City government to coordinate with governing bodies of other nearby towns and digital services providers to improve high-speed digital services throughout the region.

ACTIONS

- 1 Ensure that zoning regulations maintain and enhance the mix of downtown businesses, including basic goods and services.
- 2 Develop a long-range plan for digital high-speed telecommunications.

OUTCOME 3

Recognize the importance of quality of life in attracting new firms to locate in Lebanon and in retaining well-educated, skilled workers.

STRATEGIES

- 1 Seek growth and development that preserves or, ideally, enhances Lebanon's quality of life.
- 2 Support the arts and culture as a distinctive and significant component (creative economy) of the local and regional economy.
- 3 Promote Lebanon's historic, environmental, scenic, recreational, and cultural assets.
- 4 Continue to strive for excellence in public education and municipal services, taking into account the impact on taxes levied to City residents.
- 5 Encourage housing in the upper floors of downtown buildings.

ACTIONS

- 1 Implement the zoning revision recommendations outlined in the City's Natural Resources Inventory to protect and enhance the most critical natural resources and open spaces.
- 2 Explore seeking authority from the state legislature to implement a City sales tax.

7| Housing

7|A Vision & Purpose

The City of Lebanon shall actively foster a diverse range of housing opportunities and choices for current and prospective residents, and will strive to promote the development of diverse, sustainable neighborhoods that reflect Lebanon’s “small-town” character and distinctiveness.

The City of Lebanon shall encourage a range of housing options for all segments of the population. New housing development should contribute positively to existing neighborhoods and create safe and desirable new neighborhoods consistent with the other planning goals of the City as expressed in this Master Plan.

7|B Issues & Priorities

7|B-1 Housing Needs

Lebanon’s continued economic vitality is dependent on the availability of housing that is affordable for the City’s workforce. Not only does the City’s housing stock need to expand as the economy grows, but the homes need to match the needs and means of those new workers and their families. As residents’ housing needs will change over their lifetimes, the City needs to provide a diversity of housing options so that people at all stages of life can live in Lebanon. While ownership of a single-family home will remain the preferred choice for many households, other types of housing will be needed to attract and retain a diverse population, achieve higher-density development, increase the supply of affordable homes, meet the housing needs of both younger and older residents, and provide housing to residents with special needs.

7|B-2 Livable Neighborhoods

Lebanon’s quality of life and small-town character is rooted in its residential neighborhoods, particularly the older neighborhoods that grew outward from the Lebanon and West Lebanon business districts. These traditional neighborhoods have many attractive characteristics that were not replicated in much of the housing development that occurred in the second half of the 20th century. To maintain the City’s quality of life and small-town character, new residential development should incorporate the characteristics that have made those traditional neighborhoods attractive places to live for generations of City residents.

7|C Existing Conditions & Trends

Lebanon’s housing helps shape the identity of the City, and is a principal influence on the lives of its residents. There are a variety of housing options in Lebanon, with significant components of renter and owner-occupied single-family, duplex, multi-family and manufactured homes found throughout the City, in urban, suburban and rural settings. The City’s location and amenities make it an attractive place to live. The regional economy is stabilized by the presence of large institutional employers, and includes a robust workforce, which in turn requires housing for employees.

[key points](#) | [vision & purpose](#)

- Foster a diverse range of housing opportunities for all segments of the population
- Promote development of diverse, sustainable neighborhoods that contribute to Lebanon’s quality of life and small-town character

[key points](#) | [issues & priorities](#)

- Provide a range of housing options that will support the City’s continued economic vitality and a diverse population
- Build and maintain livable neighborhoods that will contribute to Lebanon’s quality of life and small-town character

key points | existing conditions & trends

- While Lebanon has a diverse housing stock, particularly as compared to other Upper Valley communities, the supply of housing in the City and region has not kept pace with the needs of a growing workforce.
- Lebanon and the Upper Valley continue to struggle to provide housing that is affordable for the region's workforce, with a particular need in the City for rental housing affordable to low- and moderate-income households. There is also a need for housing for the region's growing number of older residents.
- The design and character of residential neighborhoods is critical to maintaining Lebanon's quality of life and small-town character. The City's older residential areas extending out from the Lebanon and West Lebanon business districts provide excellent examples of the characteristics of livable, attractive neighborhoods.



7 | C-1

Housing Supply

The number of housing units, the diversity of housing types, and the range of housing costs are important characteristics of the City's housing supply. The City offers a spectrum of housing opportunities and choices: single-family, multi-family, owner-occupied and rental units. The following list highlights some of the major characteristics of Lebanon's housing supply:

- 6,649 housing units are located within Lebanon. (Census 2010)
- 942 housing units were added from 2000-2010, representing a 17% increase for the decade. (Census 2010)
- Housing development in Lebanon from 2000-2010 occurred at a greater rate than Hanover, Hartford, Claremont and the State of New Hampshire, and was similar to the rate for Grafton County. (Census 2010)
- Lebanon's housing units are 47% single-family and 53% multi-family. (Lebanon Planning Office)
- During the 2000s, 80% of housing units were constructed within the urban core and 20% outside. The 1990s had approximately 47% of new housing construction within the urban core and 53% outside the urban core. (Lebanon Planning Office)
- 49% of occupied housing units are owner occupied, 51% are renter occupied. (Census 2010)
- The 2010 housing unit vacancy rate was 7%, up from 4% in 2000. The vacancy rate for owner-occupied homes was 3% and for rental units was 5.6%. (Census 2010)
- In 2010, the average household size was 2.10 people, as compared to 2.23 people in 2000. (Census 2010)

In addition to the existing diverse housing stock, there is a significant land base that could meet housing demand into the foreseeable future. However, the 2002 Upper Valley Regional Housing Needs Analysis report, concluded that housing development in the region has not kept pace with the needs of the growing workforce. In 2010, the Upper Valley Lake Sunapee Regional Planning Commission initiated an update of the Upper Valley Regional Housing Needs Analysis report, with a projected completion date of Spring 2012. The updated analysis will provide a synopsis of the current status of both supply and demand for housing within the region, including Lebanon's fair share.

The relationship between housing supply and demand is not a simple linear relationship, but a more complex dynamic in which the individual types or categories of housing units strive to achieve their own unique balance between supply and demand forces. For example, in Lebanon it is generally acknowledged that the demand for "workforce" housing exceeds supply, where currently the supply of "higher end" homes exceeds demand. This is supported by feedback from the region's major employers requesting more workforce housing opportunities be provided, and evidenced by the number of approved but yet to be built housing units priced above the me-

dian home sale price. Vacancy rates are an additional metric reflecting the balance between supply and demand, as our housing costs and the ability of peoples income to support housing choices.

7|C-2 Housing Affordability

Housing affordability is a growing challenge. Housing is becoming less affordable due to a number of factors, which include high land costs, the regulatory process, costs of building material and labor, and the state property tax structure. At the same time, housing assistance funding is decreasing.

Many families are finding it increasingly difficult to find affordable housing options close to work and necessary services. When housing is not available in the job center communities, households have to seek options in smaller communities farther away. This negatively affects vehicle miles traveled, traffic congestion, air pollution, and other by-products of sprawl, as well as quality of life factors such as time for family and community. In addition, high gas prices are more difficult for lower income households to absorb. There is an insufficient supply of suitable affordable/workforce housing to serve the residents of Lebanon. This problem is even more serious for the growing elderly population who are often most in need of living in in-town locations where transit, shopping, and other services are available, despite the best efforts of local non-profits such as the Lebanon Housing Authority and the Twin Pines Housing Trust.

New Hampshire statute RSA 674:58-61 defines affordable housing as: “housing with combined rental and utility costs or combined mortgage loan debt services, property taxes, and required insurance that do not exceed 30 percent of a household’s gross annual income”. In 2008, the State of New Hampshire enacted Senate Bill (SB) 342, which “requires municipalities that exercise the power to adopt land use ordinances to provide opportunities for the development of workforce housing, and establishes a mechanism for expediting relief from municipal actions which deny, impede, or delay qualified proposals for workforce housing.”

In response to this law, the Lebanon Planning Office produced the report, “City of Lebanon Workforce Housing Law Compliance Overview”. The purpose of the report was to examine whether the City of Lebanon provides reasonable and realistic opportunities for the development of workforce housing, including rental and multi-family housing as required by the Workforce Housing Law. Key findings of that report included:

- Moderate- to low-income households (e.g. earning 60% or less of the median household income) are unable to find appropriate rental housing in Lebanon.
- There is a high demand for rental housing concentrated in the City of Lebanon, resulting in high prices and low vacancy rates, suggesting that the available housing stock is not meeting demand for the workforce.
- The average single-family home is not affordable when using the 30% affordability guideline.
- Manufactured housing and condominiums can be affordable options in Lebanon.
- Affordability is better in higher density zoning districts.
- 84% of the Lebanon’s residentially zoned land allows the opportunity for workforce housing development.

Manufactured Home. Factory-built home constructed on a chassis after adoption of the HUD code on June 15, 1976; arrives on the site fully assembled (though often in more than one unit); inspected by HUD inspectors prior to delivery for conformity to the HUD code.

key points | future challenges & opportunities

- Lebanon needs residential development that is compatible with other community goals such as resource protection, smart growth, transportation alternatives.
- Lebanon needs housing available at prices, sizes, and locations to match the needs and means of the people who will fill the jobs being created in the City and region, as well as the changing housing needs of current residents as they move through life.
- Lebanon will have to be more proactive in expanding the availability of housing affordable to low- and moderate-income households, as the market is not creating an adequate supply of affordable homes.
- Residential neighborhoods in Lebanon should be planned and designed with characteristics that make them attractive, healthy, sustainable, livable places, and that create a sense of community and belonging for residents.



In essence, the report highlights that although opportunity exists, outcomes are not being achieved to address the provision of affordable housing, with the affordability of rental housing units being of greater concern than affordability of single-family home ownership.

7|C-3 Neighborhood Character and Design

Much of the residential development in the 1970s and 1980s lacked the characteristics that made older, more traditional neighborhoods attractive places to live. These residential developments were often poorly planned and isolated from the community, requiring the use of automobiles to serve the needs of residents. More recent developments such as Spencer Square and Emerson Gardens are better situated to enable residents to socialize and walk to jobs, errands or to the bus stop. Future residential development, unless properly planned, has the potential to create excessive traffic and place other additional economic burdens on the City, as well as to degrade the resources and amenities that make Lebanon a special place to live.

7|D **Future Challenges & Opportunities**

7|D-1 Planning Techniques and Principles

Increased residential development to meet the needs of the City's residents and businesses does not need to be inconsistent with other planning goals. Poorly planned or inappropriately sited development often degrades both critical natural resources and those features of the neighborhood that give it its special character. However, there are many land use planning techniques available to ensure that development is consistent with the protection of important natural resources and special features. They include:

- Shoreline and wetland buffers
- Situating human activity away from sensitive areas or special resources, such as steep slopes, wetlands, important habitats, and important agricultural or forest lands
- Stormwater management, erosion and sedimentation control
- Siting and design to reduce visibility of development located on ridgelines and hillsides
- Designing outdoor lighting to achieve the goals on the site without impacts off-site
- Ensuring ample open space areas are available for outdoor recreation
- Siting and construction to maximize energy efficiency

Similarly, good planning principles can ensure that residential development is consistent with the goal of building livable, walkable communities and the reduction in the additional traffic increase that development can otherwise bring. These principles can result in the creation of new neighborhoods rather than merely assembling houses. Some of these principles are:

- Locate near shopping, jobs, utilities and services
- Connectivity of roads
- Pedestrian and bicycle paths and sidewalks

- Narrow roads and shallow setbacks
- Building design features such as rear garages and front porches
- Street trees and other pedestrian amenities (like benches or public art)

Fiscally, as noted in the Land Use Chapter, it is less expensive for the City to provide facilities and services to high-density residential development in and near the downtown areas than it is to serve low-density development in outlying areas. Some examples of the increased costs associated with rural sprawl are increased school bussing, road maintenance, and emergency services, as well as environmental costs and loss of community and rural character. Additionally, Lebanon should continue to require new development to pay their proportional fair share of off-site improvements necessitated by the development. RSA 674:21 enables planning boards to require developers to pay for highway, drainage, and sewer and water upgrades made necessary by their development.

7|D-2 **Housing Supply and Demand**

The idea of balancing housing and jobs goes beyond achieving equilibrium between the number of housing units and jobs. Preferably, housing should be available at prices, sizes, and locations to match the type and location of jobs available. For those with special needs, sufficient housing should be developed to eliminate the existing waiting lists. Upon completion of the Master Plan, the City will engage in developing a housing implementation plan that will include an analysis of the supply and demand equation across the various categories of housing stock, incorporating the findings of the 2012 Regional Housing Needs Analysis report. The plan will include recommendations addressing supply, as well as the form or design characteristics of residential neighborhoods.

7|D-3 **Housing Affordability**

Every resident of Lebanon should have access to decent, affordable housing. For this to occur, the City needs to preserve the existing inventory of affordable housing and take positive steps to encourage the development of new housing affordable to the City’s workforce and lower income households. Land use tools available to encourage more housing affordable for the City’s workforce and lower-income households include:

- Revisiting how the City created other successful affordable and/or workforce housing projects and emulating the positive characteristics of such.
- Density bonuses for including a percentage of permanently affordable and/or workforce housing in large subdivisions or multi-family developments.
- Allowing accessory apartments with reasonable restrictions.
- Ensuring that suitable developable land is zoned for higher densities, including multi-family housing.
- Ensuring that local ordinances do not discourage alternative housing types.
- Zoning downtown and commercial areas for mixed use to encourage second floor apartments and redevelopment with infill, as well as employer-provided housing.



quarry hill



churchstreet

- Ensuring that zoning definitions do not restrict nontraditional households or alternative living arrangements.
- Coordinating with Grafton County Economic Development Corporation to attract and retain jobs that pay livable wages.
- Encouraging diversification in neighborhoods through housing development policies that permit various kinds of housing for various income levels in the same neighborhood.
- Exploring alternative development strategies, such as cottage or bungalow development, to promote, smaller, more energy-efficient, more affordable subdivisions of dwellings with limited size and footprint.
- Exploring ways to cooperate with the Lebanon Housing Authority and other agencies to use City-owned land for development of low- to moderate-income housing.
- Allowing modern manufactured homes on permanent foundations in selected residential zones.
- Exploring the use, renovation or expansion of under-utilized buildings to include affordable and/or work-force housing units.
- Exploring with community-based land trusts the possibility of creating developments where land is held in trust while selling or renting housing units, thus protecting affordability by preventing excessive land appreciation.

7 | D-4 Neighborhood Character and Design

The City should encourage the types of neighborhood development patterns that residents find most attractive. Existing patterns of development that have produced pleasant and congenial neighborhood development balanced with open space areas should be allowed to be replicated. New residential development should similarly be based on the conventions of traditional neighborhood development.

Residential activities within such neighborhoods should include both owner-occupied and rental housing. The City should, however, discourage dense development of multi-family housing in the more rural areas of the City to minimize development impacts on the character of these areas.

The City should encourage integration of workplaces, retail establishments, and educational, cultural, religious, and recreational institutions into existing and new neighborhoods. A variety of land uses should be in close proximity to one another, allowing development to achieve a more economical density in order to take advantage of centralized utilities and services. Instead of prohibiting mixed uses, the City should strive to reasonably control the nuisance effects of nonresidential uses within neighborhoods. This kind of integration also provides a sense of civic pride. When people work, live, shop and entertain themselves within such an integrated community they establish close relationships with neighbors and develop a greater sense of personal community responsibility.

Neighborhood design should facilitate social interaction and serve the needs of pedestrians and bicyclists as well as automobiles. To this end, the City should work to reduce the intrusion of the automobile into the daily life of the residential neighborhood. Sidewalks, bike paths, parks, playgrounds, and other pedestrian oriented amenities should be encouraged as part of neighborhood planning. The zoning ordinance should outline desired

elements. Civic and neighborhood organizations should be given incentives to develop these amenities in existing neighborhoods. Developers should be required to include them in new developments.

New owner-occupied and rental housing should be conveniently accessible to major centers of employment, including the existing urban centers of Lebanon and West Lebanon and Route 120 North to promote walkable, bikable neighborhoods. New housing should be located principally in areas most economically served by existing City services and utilities. Residential development should be encouraged at a density that creates viable new neighborhoods and avoids a pattern of small, scattered residential subdivisions.

Seniors and other residents with special needs require housing that is near services and transit. Some households may need additional on-site services that are offered in group housing, nursing homes and assisted living facilities. Housing developed for seniors and people with special needs should be integrated into the community and located conveniently to the downtown areas of Lebanon and West Lebanon near shopping and community services.

OUTCOME 1 Provide a range of housing options that will support the City's continued economic vitality and a diverse population.

STRATEGIES	ACTIONS
1 Ensure that the City takes a proactive role in bringing jobs and housing back into balance.	Revise the City's land use ordinances to allow accessory apartments with reasonable restrictions for owner occupied single-family homes. 1
2 Ensure that a sufficient amount of land with high development potential is zoned for high-density residential use consistent with the rest of this plan.	Revise zoning in downtown and commercial areas for mixed use to encourage second floor apartments and redevelopment with infill, as well as employer-provided housing. 2
3 Ensure that building standards for rehabilitation of existing buildings are reasonable.	Revise the City's land use ordinances to encourage new manufactured home parks using innovative layouts and site planning. 3
4 Continue to consider the opinion and recommendations of the Upper Valley Housing Coalition and regional planning agencies regarding increased housing development to meet the needs of the City's workforce in collaboration with surrounding communities as appropriate.	Revise the City's land use ordinances to allow modern manufactured homes on permanent foundations in selected residential zones, and ensure that local ordinances do not discourage alternative housing types, including manufactured housing. 4
5 Encourage large employers to participate in housing development.	Revise the City's land use ordinances to create flexibility for Planning Board consideration and approval of unique housing proposals in the Residential High Density (RHD) District beyond the nominal building heights and setback requirements to permit significant increases in density taking into consideration land and neighborhood conditions. 5
6 Encourage the development of housing that is affordable for low- and moderate-income households in Lebanon.	Revise the City's land use ordinances to offer density bonuses to developers who include workforce housing units in large subdivisions or multi-family projects. 6
7 Consider City road maintenance for permanently affordable housing, and property tax exemptions for affordable housing owned by nonprofit organizations.	Re-zone some developable land for high-density development, including multi-family housing. 7
8 Ensure that tax appraisals on affordable housing reflect the market value as encumbered by deeded affordability restrictions.	Review the zoning ordinance to ensure that realistic development potential is available close to services and transit for a variety of housing options to meet the needs of the elderly and disabled and amend as needed. 8
9 Explore legislation to enable the City to require new residential developments above a threshold size to create an adequate number of permanently affordable units, and incorporate in the zoning ordinance if it becomes enabled.	Review the zoning ordinance to ensure that zoning definitions do not restrict nontraditional households or alternative living arrangements for example: congregate housing, hospice home, assisted living, or transitional living and amend as needed. 9
10 Require PURDs (Planned Unit Residential Developments) to include a certain number of affordable units with protection of affordability.	Review the approval process and streamline it where possible. 10
11 Provide incentives for the private development of affordable/workforce housing, e.g. fee exemptions and/or density bonuses where appropriate for rental units as well as owner occupied homes.	
12 Continue to coordinate with Grafton County Economic Development Corporation to attract and retain jobs that pay livable wages.	
13 Encourage diversification in neighborhoods through housing development policies that permit various kinds of housing for various income levels in the same zone.	
14 Encourage opportunities for housing developments that include diverse income levels within the development of neighborhoods.	
15 Explore cottage or bungalow development strategies to promote, smaller, more energy-efficient, more affordable subdivisions of dwellings with limited size and footprint.	
16 Continue to allow conversion of single-family homes to duplexes or multi-family dwellings.	

OUTCOME 1 Provide a range of housing options that will support the City's continued economic vitality and a diverse population.

STRATEGIES

- 17 Explore ways to cooperate with the Lebanon Housing Authority and other agencies to use City-owned land and explore opportunities to allow City land for low to moderate-income housing.
- 18 Explore the use/renovation/expansion of under-utilized buildings to include affordable and/or workforce housing units.
- 19 Explore with community-based land trusts the possibility of creating developments where land is held in trust while selling/renting housing units, thus protecting affordability by preventing excessive land appreciation.
- 20 Revisit/emulate how the City created other successful affordable and/or workforce housing projects.
- 21 Seek to provide all residents of the City, whether elderly, disabled, or with other special needs, with an adequate supply of housing addressing their needs.
- 22 Cooperate with and support the efforts of area nonprofit organizations working to provide shelter and supportive social services for those with housing needs not provided for by the private for-profit market.
- 23 Pursue opportunities for high-density housing development within walking distance of major job centers.
- 24 Encourage workforce housing development within walking and biking distance of any future business growth areas.

OUTCOME 2

Build and maintain livable neighborhoods that will contribute to Lebanon’s quality of life and small-town character.

STRATEGIES

- 1 Plan new residential development in a manner that enhances the elements that make a neighborhood feel like a neighborhood.
- 2 Encourage as part of neighborhood planning: sidewalks, bike paths, parks, playgrounds, bus stops, walking paths and other pedestrian-oriented and traffic calming amenities.
- 3 Seek creative approaches to encourage resident participation in all aspects of neighborhood planning.
- 4 Give incentives to civic and neighborhood organizations to develop pedestrian oriented amenities in existing neighborhoods including access to City planning services and City construction programs and services.
- 5 Locate new housing principally in areas most economically served by existing City services and utilities.
- 6 Link zoning and services so that high-density development is allowed where services are most cost effective to provide.
- 7 Encourage higher density housing near core areas with existing infrastructure and discourage sprawl.
- 8 Integrate multi-family and condominium development of appropriate scale into larger neighborhoods with other types of housing.
- 9 Require developers to present complete site inventories (including opportunities and constraints) as part of preliminary subdivision and site plan review so that the Planning Board can determine when and if clustering of homes is needed to protect high priority resources, similar to conservation design techniques.
- 10 Ensure that the Zoning Ordinance, Subdivision Regulations, Site Plan Review Regulations, and Driveway Regulations all work together to guide residential development towards a livable, bikable and walkable design.
- 11 Encourage developers to site and design buildings to meet LEED certification (Leadership Energy Environmental Design) or other energy sustainability guidelines.
- 12 Require new development to pay its proportional fair share of off-site improvements as enabled by RSA 674:21 Innovative Land Use Controls.
- 13 Promote the role of the Planning Office and Planning Board to assist housing developers in conceptualizing large projects.

ACTIONS

- 1 Identify and analyze existing residential neighborhoods to identify desirable elements of neighborhood development patterns, including building mass and setbacks and integration of compatible nonresidential uses and identify ways to amend existing regulations to strengthen existing neighborhoods as growth continues and build successful new ones.
- 2 Develop neighborhood plans to ensure that improvements and new development encourage social interaction, serve the needs of pedestrians and bicyclists, and reduce automobile traffic.
- 3 Study and modify Site Plan Review and Subdivision Regulations to control automobile traffic to allow safer pedestrian activity, addressing such issues as road widths, corner radii, signage and other specific design criteria, while ensuring adequate access by emergency vehicles.
- 4 Revise subdivision and site plan review regulations to require developers to include pedestrian and bicycle oriented amenities in new residential neighborhoods.
- 5 Establish urban service boundaries based on careful consideration of current capacity of the City’s water supply and wastewater treatment plant, expansion capabilities, future needs, and areas where high density development is most appropriate.
- 6 Make zoning changes to encourage increased housing density in areas deemed suitable by the Planning Board due to their proximity to jobs and services, water and sewer, and other considerations as identified in the Land Use chapter of this plan.
- 7 Review the City’s land use regulations and amend as needed to protect the City’s natural resources from poorly planned or inappropriately sited development.
- 8 Revise the City zoning ordinance to include “performance zoning” for integrating nonresidential uses into neighborhoods, which would regulate the factors that affect compatibility with residential uses (e.g., size of business as measured by square feet, customers, employees, noise, lighting, hours, and volume and types of traffic).
- 9 Consider adopting differential impact fees based on the cost of community services for downtown development vs. scattered development in outlying areas if the rate of residential development increases and facility expansions will be necessitated.

8|

Community Facilities and Services

8|A

Vision & Purpose

The City of Lebanon should continue to provide high quality community facilities and services. The City should also continue to maintain and improve community facilities; this includes the reuse of facilities and development of new facilities within the downtown areas to maintain more of the outlying open areas.

Since both the quality and cost of community facilities and services are impacted by the City’s development policies, they are an integral part of the long-range planning program. The City should coordinate land use and development with the capacity and capability of facilities and services to maximize their efficiency and effectiveness in a manner consistent with the Land Use Chapter of this Master Plan.

Participation in ongoing regional planning and contribution to regional efforts when possible and appropriate is of key importance. In order to better integrate community facilities, the City should coordinate with the Lebanon School Board to assure management of major capital expenses and bond issues for City residents.

8|B

Issues & Priorities

8|B-1

Demand for Services

The City provides a variety of facilities and services for its citizens and the region. Each of these services and the City’s overall infrastructure is affected by the amount of employment, housing, medical, retail, and tourism activities that bring people to Lebanon to live, work, shop or visit. Demand for these services has increased from expansion of employment and residential development in the City and Upper Valley.

As Lebanon continues to grow, demand for public services and infrastructure will continue to increase, straining the City budget and, ultimately, the ability of residents to afford living here. The cost of providing the facilities and services that will be demanded as the City continues to grow can be controlled through:

- Adopting land use policies that direct development toward existing built up areas where City facilities and services are already available.
- Improving the efficiency of City facilities and services.
- Reducing the per capita demand on City facilities and services.
- Keeping City facilities and infrastructure in good condition to avoid costly repairs resulting from deferred maintenance.
- Continued long-range planning and capital budgeting for upgrading and expanding City facilities and services.



[key points](#) | [vision & purpose](#)

- Provide high quality community facilities and services.
- Manage growth so that new development does not create a demand for community facilities and services that would place an excessive burden on City taxpayers.



[key points](#) | [issues & priorities](#)

- Meet demand for community facilities and services as the City continues to grow without unduly burdening taxpayers.
- Increase regional coordination and sharing of resources in the provision of community facilities and services.

key points | existing conditions & trends

- Protecting public health, safety and welfare is a basic role of government, and residents also look to City government to provide facilities and services that enrich quality of life.
- Lebanon has a paid fire department, which also provides emergency medical services, and a police department. Calls to both departments have been increasing in recent years.
- Lebanon does not directly provide electric or telecommunications services, but the City has a role in establishing policies related to energy and telecommunications infrastructure.
- Lebanon provides municipal water and wastewater service in parts of the City. The City's wastewater collection system and treatment plant are being upgraded and the treatment plant is expected to reach capacity by 2029.
- Lebanon owns and operates a lined landfill that accepts waste from the City and other communities in New Hampshire and Vermont. The City is currently seeking a permit to expand the landfill, which would extend its life from 2015 to 2027.
- Lebanon owns a variety of buildings and lands including the City Hall/Opera House, the Public Works facility and cemeteries.
- Lebanon has a K-12 school system that includes neighborhood elementary schools, a middle school and a high school.

8|B-2 Regional Coordination

There are many opportunities for improved coordination with neighboring municipalities, the school district, the state, and other partners in providing community facilities and services. Sharing resources is becoming more important as all levels of government are facing budgetary constraints. Greater regional coordination could also result in greater access to community facilities and services for residents throughout the Upper Valley.

8|C Existing Conditions & Trends

Protecting public health, safety and welfare is a basic role of government. The City fulfills that role through the provision of community services like police, fire, ambulance, road maintenance, code enforcement, and disaster response. Government and private utilities work together to maintain and improve the infrastructure that provides the basic necessities of modern life - drinking water, sanitation, electric power and communications. Residents also look to City government to directly provide or contribute funding for services that enrich quality of life such as parks and recreation programs, educational opportunities, library, arts and cultural amenities, and social and human services.

8|C-1 Emergency Services

8 | C-1a **Fire Department.** The Fire Department responds to ambulance, rescue, hazardous materials, fire calls, vehicle accidents. The department is also involved with emergency management, disaster preparedness, pandemic planning and prevention services. In 2010, the department responded to 3,216 calls, 56% of which were for emergency medical services and 10% of which were outside the City. The number of calls increased 55% during the 2000s.

In 2009, the department was composed of 24 career firefighters, 2 fire inspectors, a fire chief and an assistant fire chief, 12 on-call firefighters and 11 support staff. Seventeen of the department's responders are certified EMTs (emergency medical technicians). The department maintains a minimum of five firefighters on duty at all times.

The department has a fleet of 10 emergency vehicles and 5 support vehicles.

There are three fire stations in the City:

- Station #1 on Park Street in downtown Lebanon, which is in need of repair and general upgrades.
- Station #2 on Main Street in West Lebanon, which is in need of repair and general upgrades.
- Station #3 on Route 4 north of Mascoma Lake, which is in need of water and septic upgrades, and additional facilities for personnel.

In past years, the Fire Department's on-duty response personnel was able to provide additional services such as: in-service inspections, pre-permitting plan review, municipal fire alarm, building repairs, training, etc. The department can no longer provide many of those services because of the increase in emergency calls, and the

change in personnel and equipment. With the sophistication of emergency apparatus, on-duty personnel can no longer undertake major repair work on the transmissions, engines, pumps and hydraulic systems.

The City of Lebanon has an ISO (Insurance Service Office) rating of 4 for areas served by water hydrants and 9 for areas without hydrant service based on the capabilities of the City's Fire Department and infrastructure. Insurance companies use the City's ISO ratings to set fire insurance premiums with a rating of 1 representing the highest level and 10 indicating the lowest level of fire protection. The City's recent ISO assessment included highlighting deficiencies in several areas primarily related to the number of available personnel.

8 | C-1b **Police Department.** The Lebanon Police Station is located on Poverty Lane. The station is centrally located as far as operations are concerned. The Police Department feels the building is sufficient to meet the department's needs.

The Lebanon Police Department had 35 full-time sworn Officers and 2 part-time Officers on the force as of 2009. It maintains 24 hour-per-day dispatching with a communications staff of eight full-time and two part-time people. Because of Lebanon's role as a regional economic center, the police force provides many services unrelated to residential uses and must be capable of meeting a wider range of non-resident demands for a much larger daytime population.

The Lebanon Police Department continues its efforts as a community-based department, with a proactive, person-to-person emphasis on crime prevention, drug and alcohol education, and community activity. The Department's efforts are especially targeted to young people, including the "Student Resource Officer" program, in which the police maintain a presence in the City's schools. This approach leads to a greater familiarity between police and residents, resulting in a greater feeling of safety and sense of community.

8 | C-2 Electric Utilities & Telecommunications

8 | C-2a **Electric Service.** National Grid, formerly Granite State Electric, provides electrical service in the City of Lebanon. In 1998, National Grid opened up to electric competition, but to date there have been few competitors.

Three-phase power is available at the City's industrial and commercial centers and major arteries and can be made available to any new areas once the demand is established. The running of new lines is performed for a fee charged to the new user. National Grid currently offers conservation incentive programs for residential and commercial/ industrial customers.

8 | C-2b **Local Power Generation.** The Wilder Dam, at maximum capacity, can generate 41,000 kilowatts of power or 41 megawatts. The dam's current license expires in 2018; re-license procedures are likely to start in 2012. During the process of re-licensing the dam there is opportunity for the public to comment on what is desired for a benefit to the community to offset the dam impacts. In addition to the Wilder Dam, there are two dams on the Mascoma River producing power. The Rivermill Hydro Dam owned by Rivermill Hydroelectric Inc. and the Glen Road Dam owned by Enel North America Inc.

The potential for expanding the region's hydropower capacity is limited because the majority of environmentally and economically feasible sites have already been developed or licensed. The greatest potential for ad-



wilder dam

ditional hydropower is likely to be found in improving generating efficiency at existing plants or in bringing nonproductive or under-productive existing dams online. More study is needed to identify and evaluate options.

8 | C-2c **Communications.** The maintenance of a modern and accessible communications network is considered essential to the public welfare. Telecommunications technologies are rapidly changing, and must be evaluated on an ongoing basis. Police and fire departments and emergency medical services all rely on communication facilities to provide essential services. Technology and telecommunications can also improve the functions of City government and the quality of its service to residents. Access to information is critical to maintaining a sustainable economic climate that keeps up with current technology and anticipates technological trends.

8 | C-2d **Telephone Service.** Fairpoint Communications provides land-line phone service in Lebanon.

8 | C-2e **Cable Television.** In New Hampshire, local municipalities can regulate the cable television industry. The City of Lebanon is currently working on negotiating a franchise agreement with Comcast as the sole provider. Taking part in the regional public access channel for local programming is an important consideration for the City, as it is another strategy to help keep citizens better informed about City government and activities and helping in providing transparency in government. High-speed internet access over cable lines would improve the business climate and also provide cable users with video quality on the internet.

8 | C-2f **Wireless Communications Towers.** During the 2000s, consumer adoption of cell phones and the extension of cell phone service from major cities to smaller markets and rural areas has resulted in the proliferation of wireless communications infrastructure to meet growing demand for this rapidly evolving technology. Wireless technologies have expanded beyond voice service, to internet, e-mail and streaming video. As wireless service continues to develop, additional and/or upgraded infrastructure will be needed to expand capacity or improve service quality.

The major planning issue in wireless communications technology today is the siting and construction of new communication towers and supporting network infrastructure including power lines, access corridors and support buildings. With the City of Lebanon's hilly topography, towers and related facilities need to be located on the higher elevation points in order to provide the broadest service area coverage. These structures and their supporting infrastructure can negatively impact mountaintops and ridge lines that are so important to the City's ecological richness and the scenic character of the rural areas of the City.

8 | C-2g **Satellite.** Satellite services generally complement, rather than compete with, terrestrial services. According to the FCC, there doesn't seem to be a trend towards satellites replacing towers, especially in urban areas. In areas where it is expensive to run cable or put up facilities, satellites will better compete with terrestrial services.

8 | C-3 Water and Wastewater Infrastructure

8 | C-3a **Water Source.** The City's public water supply is the Mascoma River with the intake for the potable water treatment plant approximately 3.5 miles below the outlet to Mascoma Lake and three miles above the Mascoma River's confluence with the Connecticut River.

Lebanon's surface water comes from the greater Mascoma River watershed, which encompasses 195 square miles and includes Mascoma Lake, Goose Pond and Crystal Lake. Based on U.S. Geological Service data, the

usable capacity of these reservoirs is 7.93 billion gallons. The flow of the Mascoma River is primarily controlled by the dam at Mascoma Lake operated by the New Hampshire Department of Environmental Services (NHDES).

Minimum water levels are being established to provide adequate habitat for aquatic species. The amount of water that the City of Lebanon withdraws from the river for its potable water supply is approximately 3.1 cubic feet per second. Given that the river's typical summer day flow is 40 cubic feet per second, there is sufficient supply for the City's current and future potable water demand. A period of drought, however, would result in less water in the river and could, if sustained, lead to a water shortage and competition for water between multiple uses. As such, a drought management policy should be developed.

A 2001 study examined potential groundwater sources as a supplemental potable water supply for the City. A supplemental water source would not only provide the City with a back up in the event the Mascoma River source is contaminated, but additionally provide the groundwater source that could potentially meet future demands, possibly reducing the need for expensive upgrades to the filtration plant to support increased capacity. With the examination of potential glacial and bedrock aquifers as potable water sources, there appeared to be only one well site within Lebanon that is potentially capable of producing one million gallons per day. The site is an aquifer adjacent to the eastern bank of the Connecticut River, just upstream of the City's wastewater treatment facility. Although the site appears to have excellent potential to serve as a well supply, potential contamination and the ability to pump water from this location to higher elevation areas of the City are concerns.

8 | C-3b **Water Source Protection.** A protection program for the portion of the Mascoma River's 195 square mile watershed that drains directly to the plant intake has historically been identified as a high priority for the City. In the event of the river being contaminated, the City could be temporarily without water, unless alternative potable water supply resources, such as reserves in tanks or improved interconnections with Hanover and/or Hartford, are made available. The Department of Public Works currently engages in protection measures in close proximity to the source water intake but at a limited scope and scale as administered through a chemical monitoring waiver granted by NHDES Drinking Water and Groundwater Bureau.

In 2011 with the support of a grant from the New Hampshire Department of Environmental Services, the Upper Valley Lake Sunapee Regional Planning Commission (UVLSPRC) began assisting the City in initiating the development of a source water protection program for the portion of the Mascoma watershed that drains directly to the outtake. The effort includes assessing the range of options for protection, including education and regulatory measures, and includes the concept of risk analysis relative to direct contamination incidents, such as hazardous chemical spills from adjacent roadways. This initial effort was intended to conclude in late 2011, providing recommendations for further advancement of the planning effort.

8 | C-3c **Water Treatment and Distribution.** The City of Lebanon water distribution system consists of:

- Approximately 83 miles of water mains up to 16 inches in diameter.
- 4 water storage tanks (Farnum Hill, Craft's Hill, Prospect Hill, and at the end of Lahaye Drive near DHMC).
- 2 pumping stations.
- 3 pressure reducing valve stations.

- The plant intake and dam on the Mascoma River.
- The water treatment facility located on Pumping Station Road.

The system provides service throughout Lebanon and West Lebanon. The City's topography necessitates that the service area be divided into four separate zones to maintain desirable pressures. The system also includes two interconnections with the Town of Hanover and one interconnection with the Town of Hartford. All three interconnections require manual operation in the case of an emergency and only allow water to flow directionally away from Lebanon to the neighboring communities due to system hydraulic pressures unless pumped. The City's water quality generally meets or exceeds current regulatory standards.

2010 water data show that City withdraws an average of 1.64 million gallons daily (maximum of 2.5 million gallons) and approximately 600 million gallons annually to meet the demands of the system users. Potable water usage is split between about 42% residential, 42% commercial, 13% industrial, and 3% municipal.

The treatment plant's hydraulic capacity is estimated to be an average daily demand of 2.5 million gallons and a maximum daily demand of 3.5 million gallons. The 1998 Facilities Plan for the Lebanon Water Distribution System projected that demand would reach the plant's capacity by 2026. The 2009 Water Business Plan highlights that recent water usage trends have changed, suggesting that the plant may not reach full capacity as quickly as previously estimated.

The 2008 Facilities Master Plan identified \$1.5 million in capital projects for the water treatment facility. The 2009 Water Business plan highlights that the City does not have a current comprehensive plan that includes projections for water infrastructure needs, and highlights the value of having such.



wastewater treatment facility

8 | C-3d **Wastewater.** Lebanon operates a wastewater treatment system that serves a portion of the City and parts of the neighboring Town of Enfield. The area of Lebanon near the Town of Hanover is connected to Hanover's wastewater treatment system, which has a treatment plant located near the confluence of Mink Brook and the Connecticut River. Approximately 17% of Lebanon's wastewater went to the Hanover Wastewater Treatment Plant in 2010, including the flows from DHMC and Centerra Business Park.

Lebanon's wastewater treatment facility is located in West Lebanon near the confluence of the Connecticut and Mascoma Rivers. It provides secondary treatment and discharges into the Connecticut River. The treatment facility employs the conventional activated sludge process, and has a design capacity of 3.18 million gallons per day.

The average flow from Lebanon and Enfield during the 2000s was 1.86 million gallons per day. In 2010, the annual total of 617 million gallons of treated wastewater represented an 8% decrease from 2009. Based on the 2007 20-Year Wastewater Treatment Facility Flow Projections report, wastewater flows will approach 2.5 million gallons per day by 2030 if Hanover continues to accept wastewater from its current service area in Lebanon, and would exceed 3.0 million gallons per day if Hanover does not. With its design capacity of 3.18 million gallons per day, the treatment facility is expected to reach capacity sometime after 2026.

The physical infrastructure of the plant is currently 35 years old with a typical lifespan of 50 years. In 2007, a needs assessment was completed, which recommended a \$11.2 million, multi-year wastewater treatment

facility improvement project intended to maintain existing capacity and permitted flow as projected to 2030. Implementation of the multi-year improvement project is expected to begin in 2012 and be completed in 2014.

The wastewater treatment system also needs continued upgrades to its collection infrastructure. The 2007 20-Year Wastewater Treatment Facility Flow Projections report found that nearly 47% of the flows reaching the treatment plant were a result of groundwater and stormwater entering into the system. Groundwater infiltrates into sanitary sewers through broken, cracked or improperly connected pipes. Stormwater enters through direct connections of roof drains and sump pumps, and through combined sewer lines. Of the estimated 58 miles of public sewer lines in Lebanon, an estimated 27 miles are combined sewer lines that accept both wastewater and stormwater flows.

The City's combined sewer lines create a major operating challenge for the wastewater treatment plant during periods of rainfall and snow melt when a lot of stormwater enters the wastewater system. There are seven combined sewer overflow outlets in the City that discharge untreated wastewater when the flows into the system exceed the plant's capacity. Five of these outlets are in the Water Street/Church Street/Spring Street neighborhood. The releases of raw sewage from the outlets in that area were identified as contributing significantly to the degradation of water quality in the Connecticut River, Great Brook and the Mascoma River. In 2008, untreated wastewater was released 61 times from the combined sewer overflow outlets.

In 2000, the EPA issued an administrative order requiring the City to separate sewer and storm water lines and eliminate discharges containing sewage to surface waters. In 2009, the City and the EPA negotiated a revision to the original mandate, modifying the original completion date of 2012, to a revised completion date of no later than 2020. From 2000 through 2011, the City appropriated more than \$34 million to this effort. Approximately \$17 million is anticipated to be appropriated between 2012-2018, bringing the estimated total cost of separating the City's stormwater and wastewater systems to \$51 million.

8 | C-4

Solid Waste

The City of Lebanon owns and operates a municipal solid waste landfill located between Route 12A and the Connecticut River in the southwestern area of the City. The site has been used for disposal of solid waste for many years, first through the use of an unlined landfill, which operated through 1992, and then from a permitted lined landfill located on a 10-acre site. The landfill is available to area communities on an ongoing contractual basis and is currently used by 23 communities, 12 in Vermont and 11 in New Hampshire. The City landfill accepted approximately 40,000 tons of waste in 2010. A recycling facility located adjacent to the landfill provides a means to reduce the overall volume of solid waste in the waste stream and extend the life of the landfill.

The active lined landfill consists of several discrete cells which are categorized by development phase. Based upon current filling conditions, it is anticipated that existing cells will be filled to capacity in 2015. In 2010, the City submitted an application to the New Hampshire Department of Environmental Services Solid Waste Bureau for a proposed 4.82 acre expansion. The proposed expansion should extend the life of the facility by about 12 years, reaching capacity in approximately 2027.

Solid waste business plans have been prepared for the City in 2006 and 2011. The business plans provided the City with strategies to improve the landfill through design, construction and operation. Components of the

plans included the proposed purchase of equipment to assist in more efficient compaction, as well as methane recovery strategies, and a cost/benefit analysis related to the long-term use of the facility.

8| C-5 Civic Buildings & Properties

The City's Public Facilities Committee advises the City Council and administration on the stewardship and disposition of city-owned buildings and land (excepting lands under the jurisdiction of the Conservation Commission).

8 | C-5a **City Hall/Opera House.** City Hall is located in downtown Lebanon on North Park Street facing Colburn Park. This two-story brick Neo-Federal structure with cupola was built in 1923, replacing the meetinghouse town hall destroyed by fire. Lebanon City Hall is listed in the National Register of Historic Places as a contributing structure within the Colburn Park Historic District.

The Opera House occupies more than 70% of the square footage of City Hall. The Lebanon Opera House Improvement Corporation holds a long-term lease for this space. Over 30,000 people attend performances or other events at the Opera House each year.

The "old-style construction" of the City Hall Building gives it character and charm, but makes renovations more challenging. Numerous internal building upgrades have been completed, including energy efficiency improvements, as well as ADA-compliant changes including ramps and the installation of an elevator. Additionally, the size constraints of available space limit any future expansion, in the absence of additional add-on construction.

8 | C-5b **Public Works Facility.** The Department of Public Works utilizes several buildings for operations and storage. Located along Route 4, near the Water Treatment Plant, is the Mose E. Sanville Memorial Public Works Facility Building constructed in 2010, as well as a working operations and maintenance garage space. The grounds contain an enclosed area for salt and sand storage, areas for construction materials storage, and parking for vehicles and equipment.

8 | C-5c **Lebanon Public Library.** The Lebanon Public Library is located on the east side of Colburn Park, on the corner of Bank Street. The brick structure, combining Greek details with forms borrowed from Roman and Egyptian sources as well as abstracted designs, was constructed in 1909 with a Carnegie donation and public subscription. It is also listed in the National Register of Historic Places as a contributing structure within the Colburn Park Historic District. An addition nearly doubling the size of the building was constructed in 1986, and provides a handicapped accessible entrance and an elevator serving all 4 floors of the library. The original Carnegie section of the building and the addition contain approximately 8,000 square feet.

8 | C-5d **West Lebanon Kilton Public Library.** In 1998 the library system received a bequest of approximately \$1.3 million from the estates of James and Willena Kilton, to be used for capital improvements or construction of a new West Lebanon Library. The Lebanon Public Libraries Foundation was formed in 2006, which spearheaded the capital campaign to raise additional supporting funds for construction of the Kilton Public Library. After a considerable amount of fund-raising, the foundation requested that the City match the original Kilton gift. In December 2008, the Lebanon City Council unanimously voted to match the Kilton legacy with a \$1.5 million



lebanon public library

contribution toward the project. The Kilton Public Library was opened in 2010 and replaces the former West Lebanon library building.

8 | C-5e **Cemeteries.** The Operations and Maintenance division of the Department of Public Works is responsible for maintaining City-owned cemeteries among various other responsibilities. The City owns and maintains the following cemeteries:

- Old Pine Tree Cemetery, Old Pine Tree Cemetery Road, West Lebanon
- Glenwood: Mt. Calvary Cemetery, Dulac Street, Lebanon
- Valley/Sacred Heart Cemetery, Mascoma Street Extension, Lebanon
- School St. Cemetery, School Street, Lebanon
- West Lebanon Cemetery, Pleasant Street, West Lebanon
- East Mascoma Cemetery, Route 4, East Lebanon
- Cole Cemetery, Great Brook Road, Lebanon
- Valley Cemetery Annex, Lebanon

There are roughly 2,000 cemetery plots available, and this number should be sufficient for the next decade. Planning should begin now to identify and assess potential future sites. The level of maintenance could be improved, as well as an overall community acknowledgement that cemeteries primary purpose is for burial of the dead, and that collateral uses should not interfere with the respect due to these sacred places.

8 | C-6 Lebanon School District

The Lebanon School District operates completely independently from City government and has its own annual meeting in March of each year. While construction projects proposed by the district are exempt from municipal zoning and planning regulations, the district presents their plans formally to municipal boards for advisory review.

The Lebanon School District has a comprehensive school system consisting of grades K-12, a vocational educational program and an English Language Learner program. The district's long range vision is to better serve the educational needs of a wide range of students in this very diverse community. One goal is to raise over time the quality of land and physical facilities available to its educational programs.

As recommended in the district's long range plan, and approved by voters, a new middle school is currently being constructed for grades 5-8. The location of the new middle school is along Route 4, nearly a mile east of the existing Lebanon Junior High School. Recent consolidation of neighborhood elementary schools, plus the scheduled September 2012 opening of the Lebanon Middle School, will leave the district with surplus buildings and land that is slated for sale of the writing of this plan.

Recreation fields owned and maintained by the Lebanon School District are adequate for present needs and supplement city-owned facilities through successful collaboration by the district and the City's Recreation and Parks Department.



- As the City continues to grow, the demand for community facilities and services will increase. The City would benefit from a well-planned vision that clearly delineates where utilities can extend. The establishment of an Urban Services Boundary would permit the City to focus development in a more concentrated area. This would reduce the capital and operating costs of City water and sewer systems.
- Ongoing monitoring of the condition of the emergency service equipment and infrastructure, the efficiency of the delivery, and the implementation of preventative strategies is needed to ensure that emergency services are provided at a level commensurate with demand.
- Local planning for energy and telecommunications should be aligned with regional and statewide efforts, as well as informed or guided by efforts underway by the Lebanon Energy Advisory Committee, which is currently engaged in the preparation of an energy master plan.
- The City has a long recognized need for a second water supply to supplement the current water source, the Mascoma River, in case of contamination or inadequate supply. The City also needs a source water protection program to protect its water supply. Efforts to conserve water would benefit both the City's water and wastewater treatment systems.
- The City needs to continue to operate the municipal landfill in a financially sustainable manner. Diverting waste from the landfill through recycling, re-use and composting will extend the life of the landfill and may generate other revenue streams for the landfill.
- As the City grows and expands its services, pressure for additional employees and facilities will continue to increase. Additional administrative space in downtown Lebanon should be sought to meet those future needs.
- Lebanon residents would be best served by collaborative efforts between the school administration and City administration as it relates to infrastructure and capital planning.

8 | D

Future Challenges & Opportunities

8 | D-1

Demand for Services

As the service center and employment hub of the Upper Valley, there is increasing pressure on the City of Lebanon for public services and transportation infrastructure; as the City grows the demand for services and infrastructure will increase. Environmental, fiscal, political, and other factors challenge local capacity to build, operate, and maintain the types of facilities that residents and visitors want or need. As noted in the Introduction Chapter, the City of Lebanon's resident population is 13,151 (Census 2010). The daytime population (estimated to be 25,000—35,000) is significantly increased by the numbers of non-residents who work and shop in Lebanon. This influx creates an additional burden on our City's infrastructure and public services. Since most municipal programs are supported by tax revenue, the reality is that civic infrastructure and fiscal impact are inter-dependent public policy issues. Each is driven by local land use choices.

The extent and adequacy of community facilities and services are far from static. Existing facilities may become inadequate through structural deterioration or functional obsolescence and/or the increased public expectations and demands that accompany residential and non-residential population growth and lifestyle changes. To plan for future facility and service needs, existing facilities must be reviewed and assessed. The cost of any upgrades or improvements should continue to be incorporated into the City's Capital Improvement Program (CIP), which the Planning Board is authorized to prepare (RSA 674:5).

While the City needs to ensure that it is served by the best practical and obtainable utilities with sufficient level of service and controls, for existing and future demands, the location of City services must be addressed. Lebanon's utility infrastructure has a major influence on land use patterns in the City. With the introduction of water and sewer utilities, development is able to occur at increased density or intensity, resulting in a major impact on the future growth and development of the City. Potable water and sewer services are second only to road access as factors affecting the type and pattern of land use development. For these reasons, the City of Lebanon should carefully consider and establish a policy regarding line extensions. Currently, potable water and sewer extensions must be approved by the City Council before the final application for subdivision review. The City would benefit from a well-planned vision that clearly delineates where utilities can extend. The establishment of an Urban Services Boundary, beyond which utilities would not be expanded, would permit the City to focus development in a more concentrated area. This would reduce the capital and operating costs of the systems and help preserve the rural character of the outlying areas.

The City should work to direct development in the central districts, reducing utilities infrastructure costs and preserving the character of the City's outlying rural areas. In keeping with the issues identified in the Lebanon Central Business District and West Lebanon Central Business District chapters of this Master Plan, services should remain in the central Lebanon and West Lebanon downtown areas whenever possible. Centralized municipal services offer convenience, support commercial activity downtown, facilitate better communication for both employees and residents, and contribute to the vitality of Lebanon's downtown areas.

8 | D-2 **Emergency Services**

The provision of emergency services will continue to be a core or essential service provided by the City of Lebanon. As such, measures should be implemented to continually assess the condition of the emergency service equipment and infrastructure, the efficiency of the delivery, and the implementation of preventative strategies. Assessments and proposed recommendations should take into account the symbiotic relationship between pending development and the subsequent demand for services.

8 | D-3 **Electric Utilities & Telecommunications**

Local planning for utilities and telecommunications should be aligned with regional and statewide efforts, as well as informed or guided by efforts underway by the Lebanon Energy Advisory Committee, which is currently engaged in the preparation of an energy master plan. The NH Climate Action Plan, prepared by the New Hampshire Department of Environmental Services is an example of a regional effort, intended to provide guidance, and speaks to a “more diversified energy mix, more efficient use of energy, and development of our communities in ways that strengthen neighborhoods and urban centers, preserve rural areas, and retain New Hampshire’s quality of life”.

Common themes in these local and regional energy planning efforts include:

- Maximize energy efficiency and renewable energy opportunities.
- Support energy conservation strategies, local clean power generation, distributed generation technologies, and innovative industries.
- Reduce greenhouse gas emissions and consumption of fossil fuels.

A shift toward greater reliance on renewable resources, such as solar, wind, and wood, would allow users to have more control over their energy sources. In the not so distant future, imported forms of energy, especially petroleum products, will eventually and inevitably become scarce and more expensive. Shifting towards these renewable resources would require lifestyle changes and would be capital intensive in the short term, but would be a sound long-term investment. Community energy and energy alternatives could be encouraged with local tax incentives.

8 | D-4 **Water & Wastewater Infrastructure**

Understanding potential barriers to the continued use of the Mascoma River as source water intake is fundamental to the long-term provision of potable water the residents of Lebanon. A water business plan should assess how water supply withdrawal limits that may be imposed by the state Department of Environmental Services relate to projected future use, as well as factors such as water rights that may be vested by the hydro-electric dams.

Additionally, existing plans recommend that the City continue to pursue alternate and/or additional water supply source(s) to provide redundancy, including whether the aquifer well site located near the Connecticut River and Route 12A is a viable supplemental or alternative future source. The previous recommendation that a formal Inter-Municipal Agreement be executed between the City and the towns of Hanover, NH and Hartford,



lebanon police department

Photo by: Douglas Albanese

VT and additional hydraulic analysis be performed to further evaluate the engineering controls required for the adjacent communities, would provide additional means to provide water to the City for present emergency demand.

The response to an emergency event such as the contamination of the Mascoma River should be provided within an existing plan. The existing Hazard Mitigation Plan developed by UVLSRPC, as well as the Lebanon Emergency Operations Plan, provide general information related to the water supply but are absent of specifics as to an emergency supply.

- 8 | D-4a **Water Source Protection.** The City would be well served to complete the development and implementation of a source water protection program for the Mascoma River Watershed. This effort would expand the scale and scope of the existing efforts of the Department of Public Works, including potentially engaging more stakeholders, such as the Mascoma Lake Association, the Intermunicipal Mascoma River Local Advisory Committee, the Conservation Commission, and substantially increasing awareness and protection of this resource.

An aquifer protection overlay district as well as riverbank protection standards would set guidelines for protection of Lebanon’s surface and ground waters, and could be components of the source water plan as well as expanded to apply to the City in its entirety.

- 8 | D-4b **Water Treatment & Distribution.** The existing 2007 Water Business Plan recommends the development of a comprehensive master plan to integrate and project future water treatment and distribution system improvements and needs in a single document. The last water distribution master plan was performed in 1998, therefore the distribution system master plan should be performed now and an update of the water treatment facility master plan be performed in 2013. The design life/depreciation of existing infrastructure should be components of the plan, as well as a review of projected demands. In general, the master plan should be updated every five to ten years.

Elements that have been expressed as ideas in the past that should be included within a comprehensive water master plan or perhaps pursued in the immediate include:

- Implementing a water conservation and efficiency program to minimize water system expenditures and reduce the associated carbon footprint. The conservation program should include public education efforts, a potable water audit to understand all sources of “lost” or “unbilled” water, and should recommend long-term conservation measures, which would be required in order to apply for a large groundwater withdrawal permit.
- An assessment of whether the City may not meet anticipated future water quality regulations. Recommendations for additional testing and processes that may allow the City to meet anticipated regulations are discussed in the water treatment plant recommendations section of the 2007 Water Business Plan, and could be implemented as well as a status update provided in the comprehensive plan.
- Recommendations as to the required on-going capital improvements to replace unsafe or inefficient lines.

- 8 | D-4c **Wastewater Treatment Facilities & Infrastructure.** The two major factors driving the current projected life of the Wastewater Treatment Plant include the condition of the plant itself, to include condition of the equipment and ability for the treatment process to meet or exceed NPDES permitting standards, as well as the total

amount of wastewater flow that the plant can accept. The planned completion of the treatment plant upgrades are designed to allow for the plant to operate out to year 2029, which coincides with projected flows that are anticipated to reach the plant's capacity for acceptance. A change in NPDES permitting conditions, which are reviewed every five years, and/or an unexpected increase in flows would alter the current projected life of the plant.

Actively assessing and monitoring the plant's ability to reach 2029 should include monitoring NPDES requirements, tracking projected flows, and oversight of the currently proposed plant upgrades. Planning for beyond 2029 could include a fiscal analysis as to replacement costs, financing strategies, scale of capacity increase, as well as the additional factors typically involved in this process.

In addition to the treatment plant, the condition of the utility lines and associated equipment will be evaluated as part of the EPA administrative order requiring the City to develop a sewer collection system preventive maintenance and sewer overflow response plan. This effort is currently included within the City's Capital Improvement Plan and presents a valuable opportunity for gathering information for system as well as general planning endeavors. Identifying and upgrading sewer lines experiencing infiltration offers a return on investment by alleviating the estimated 47% of flows that originate from infiltration, providing a savings in the cost of current treatment, and potentially capturing additional plant capacity for the future.

While the City is under the EPA administrative order pertaining to sewer and stormwater separation, it should continue to use that as the opportunity to not only improve aging or substandard water and drainage systems, but also improve bicycle and pedestrian amenities within the streetscape. Additionally, implementing a water conservation program (low flow toilets, faucets, and shower heads) could be the most economical way to gain capacity in the existing system.

8 | D-5

Solid Waste

The current long term solid waste disposal goals for the City landfill as captured in the 2011 Solid Waste Business Plan include:

- Continue to operate profitably as a limited regional landfill.
- Provide on-site solid waste disposal capacity to the year 2050 and beyond.

In order to meet the above goals, the City needs to continue to offer a competitive tipping fee that allows the City to meet its financial obligations and implement strategies that will extend the useful life of the existing resource.

The business plan provides an opportunity to capture both short and long term utilization of the landfill and should remain a priority as to its implementation. Residents have historically expressed the desire to assess the provision of the landfill as a regional resource, as well as the intention to increase the currently under-utilized recycling efforts, including offering curbside recycling pick-up on a citywide basis which would increase the number of items recycled by City residents. The business plan speaks to these and many other related issues.

8 | D-6 City Buildings & Properties

As the City grows and expands its services, pressure for additional employees and facilities will continue to increase. There have been numerous discussions regarding the potential relocation of various City services outside of City Hall, but the general consensus has been that residents would like City services to remain centralized for the convenience of “one-stop shopping.” Keeping most services centralized also promotes and retains the vitality of the downtown area and discourages sprawl in outlying City areas.

While the Department of Public Works currently handles maintenance for City cemeteries, the City may want to set up a civic committee to address maintenance, beautification, and promotion of City cemeteries.

8 | D-7 Lebanon School District

Residents of Lebanon would be best served by collaborative efforts between the school administration and City administration for infrastructure and capital planning. The current school consolidation effort within the urban core, creates an opportunity for desirable planning for the reuse of the institutional buildings.

Outcomes & Strategies

OUTCOME 1 Meet demand for community facilities and services as the City continues to grow without unduly burdening taxpayers.

STRATEGIES	ACTIONS
1 Develop a clear policy for water and sewer extensions, guided by goals for future land use.	1 Conduct an in-depth study of emergency services (police, fire, ambulance) to determine the impact of development in certain locations on the Police and Fire Department's ability to respond adequately in emergencies.
2 Ensure that new public facilities (and where possible, existing facilities) incorporate the following principles, when appropriate: Central location (locally and regionally); good access and traffic flow; adequate parking; energy efficiency; handicapped access; multi-purpose buildings when possible.	2 Assess all City-owned buildings periodically to determine needed repairs, upgrades, energy-efficiency improvements, and replacements, as well as the suitability of operational standards.
3 Ensure that Fire and Police Department resources are used for maximum benefit to the City, and make sound planning and budget decisions that will minimize unnecessary strain of department resources.	3 Continue to evaluate and refine the impact fee structure for new development projects to provide adequate revenue to meet the infrastructure and service needs of the City.
4 Continue to explore strategies to improve recruitment and retention of police officers.	4 Conduct a response time study every five years to evaluate the current needs for additional fire stations and emergency vehicles in the City.
5 Meet the community's energy and telecommunications needs in an efficient manner while preserving the character of the community.	5 Evaluate the personnel needs for emergency response and fire prevention operations and staff to maintain the effectiveness and efficiency of emergency response, fire inspection, and fire prevention efforts.
6 Ensure that the City is served by the best practical and obtainable utilities for existing and future demands.	6 Conduct a traffic study to evaluate traffic effects on emergency vehicle response, to include corrections to identified concerns by the Insurance Service Office.
7 Direct development into the central districts as much as possible to reduce utilities infrastructure costs and preserve the character of the outlying rural areas.	7 Develop community and school fire prevention programs and remove fire hazards in the City.
8 Continue to monitor state and federal regulations, industry trends, and developments to protect the best interests of the City and its residents.	8 Evaluate the demands that proposed development, its size, distance from population centers, and type will make upon police services in Lebanon, and consider those impacts in the development review and permitting process.
9 Encourage the exploration of supplemental energy-generating sources such as wind, water, and solar power.	9 Continue to include police equipment that meets capital improvement plan definitions in the City's Capital Improvement Program.
10 Encourage the electric utilities to evaluate the generating efficiency of existing hydroelectric plants as well as the feasibility of bringing existing plants online.	10 Develop an appropriate staff metric that considers the FBI New England average ratio of police officers to residents and the daytime population increases due to commercial, retail, and the commuting nature of Lebanon.
11 Practice and promote cost-effective energy efficiency.	11 Incorporate robust energy efficiency and conservation requirements into the City's building code.
12 Publicize and encourage energy conservation on the City website and in the City newsletter.	12 Review energy use in all City government operations on an annual basis.
13 Support the activities and recommendation of the Lebanon Energy Action Committee (LEAC).	13 Develop an energy conservation plan for City buildings and facilities.
14 Bury utility lines, when feasible, for aesthetic, safety, reliability and economic reasons.	14 Establish a committee to address telecommunications needs with an emphasis on technologically advanced telecommunication links to enhance the City's economic climate.
15 Continue to participate in the regional public access channel.	15 Develop a long-range telecommunications plan to monitor trends and plan for future telecommunications needs.
16 Promote "smart" development to decrease pressure on the City's water and wastewater systems.	
17 Continue identifying significant threats to the City's water supply.	
18 Establish a program to reduce water use and increase capacity.	

OUTCOME 1 Meet demand for community facilities and services as the City continues to grow without unduly burdening taxpayers.

STRATEGIES

ACTIONS

- 19 Coordinate utility extensions with the Zoning Ordinance and the Master Plan through a duly adopted public policy.
- 20 Monitor annually the success with which new development has harmonized with the City's growth management, land use planning, and environmental goals, and adjust water and/or sewer extension policy or the parameters of the goals as necessary.
- 21 Formulate a plan to conserve and maintain wastewater capacity.
- 22 Make improvements in the solid waste system to improve the use of solid waste as a commodity and extend the life of landfills.
- 23 Use all available recycling resources and make recycling more convenient so more people will recycle.
- 24 Continue to implement methane recovery systems underway.
- 25 Continue to support waste reduction technology where financially viable for example: crushing and using waste construction material instead of purchasing gravel for landfill maintenance projects.
- 26 Utilize any media available to the City (i.e., public access TV channel) to educate the public about recycling.
- 27 Encourage private haulers to expand and better promote their curbside recycling services.
- 28 Continue to lobby the State of New Hampshire to define "closure" in Lebanon as "intermediate."
- 29 Provide the best library services possible for the community.
- 30 Continue to study the best use of space for library and community meetings.
- 31 Increase storage and collection space for the libraries.
- 32 Use cemeteries as a City asset.
- 33 Promote the use of City cemeteries as civic and open spaces.

- Develop and approve a telecommunications ordinance to enforce the appropriate siting and design of telecommunications towers. 16
- Develop, through the City's Hazardous Materials Plan, a clear notification system to respond to any contamination of public water sources including but not limited to spills on roadways adjacent to surface waters. 17
- Incorporate a Water Department review of all proposed developments that may affect the City water supply. 18
- Prepare and adopt an Aquifer Protection Overlay District. 19
- Prepare an up to date water distribution system map identifying the information identified during the water distribution system inventory efforts. 20
- Add inventoried information to the City's GIS system and continuously update as new developments are connected to the water distribution system. 21
- Complete a hydraulic modeling study to evaluate the capacity and feasibility of increased water and sewer lines. 22
- Conduct a test well program on the identified supplemental water supply source site. 23
- Finalize the hydraulic analysis of the water treatment plant. 24
- Conduct a water audit to determine "lost" and "unbilled" water sources. 25
- Establish an Urban Services Boundary, clearly keyed to the Zoning Map and the Land Use Map that includes high-density residential, commercial, and industrial zones, as well as potential identified growth areas, while excluding the rural zones. 26
- Study the potential cost and benefits of an aggressive water conservation program as an alternative strategy to interceptor replacement that could include approaches such as requiring low-flow toilets, showers, faucets in the new construction, and subsidizing retrofit in existing buildings, much like electric companies' programs. 27
- Create a schedule for initiation of water conservation by comparing the plan for stormwater separation and the "optimal" capacity for future development. 28
- Draft and implement a clear water and sewer extension policy that will support the City's growth management, land use and environmental goals as expressed in the Zoning Ordinance and the Master Plan. 29

OUTCOME 1 Meet demand for community facilities and services as the City continues to grow without unduly burdening taxpayers.

ACTIONS

- Develop educational programs to make all citizens aware of the social, ecological, and financial benefits of recycling. **30**
- Provide an additional line item in solid waste budget for education and outreach initiatives. **31**
- Conduct a cost-benefit analysis for a City curbside recycling program. **32**
- Offer a financial incentive to residents and businesses to recycle. **33**
- Begin the process of identifying and assessing potential future cemetery sites. **34**
- Establish a civic committee to implement recommendations in the cemetery study, to better promote and maintain City cemeteries. **35**

OUTCOME 2 Increase regional coordination and sharing of resources in the provision of community facilities and services.

STRATEGIES

ACTIONS

- 1** Coordinate utility work—including highway, water, sewer, and electric - as much as possible to minimize the costs of construction and impact on neighborhoods.
- 2** Work with other communities in the Mascoma watershed to develop a watershed management plan to protect water quality and other resources in the watershed.
- 3** Encourage schools, churches/religious organizations, chambers of commerce to lead the way in this educational process about recycling.
- 4** Solicit assistance from local institutions, organizations, and businesses, i.e. recyclers, Dartmouth, Rotary, Boy Scouts, to educate the public about recycling.
- 5** Continue to make use of inter-library loan and information retrieval to avoid excessive purchasing.
- 6** Coordinate with the Lebanon School District SAU #88.
- 7** Consider incorporating Lebanon School buildings in a coordinated schedule for completing all required inspections of City-owned buildings.

- Continue to participate in regional planning efforts since growth in neighboring communities has a significant impact on Lebanon's community facilities and services. **1**
- Review City and school district buildings no longer used for their original purpose for potential future uses or disposal. **2**
- Study the ability of the water system interconnections between Lebanon and Hanover as well as Lebanon and Hartford, to allow for sharing of water resources under emergency or other conditions. **3**
- Develop inter-municipal operating procedures to allow for utilization of the interconnections. **4**
- Work with the school district in developing a course on recycling as part of the curriculum at all levels. **5**
- Hold joint School Board and City Council Meetings regularly to coordinate planning of capital expenditures in the City. **6**
- Incorporate SAU #88 in the capital improvement program process. **7**

9| Transportation

9|A **Vision & Purpose**

The City of Lebanon's transportation systems shall be balanced and integrated to improve mobility, enhance resident's quality of life, improve the attractiveness of our neighborhoods, and support planned regional growth. Transportation decisions shall be based on environmentally sound and health-promoting principles, shall focus on reinforcing Lebanon's residential neighborhoods, and shall be pedestrian and bicycle friendly.

The City of Lebanon shall strive for a balanced and integrated multi-modal (the combination of transit, motor vehicle, air, rail, pedestrian, and bicycle transportation) transportation system that provides incentives for increased use of transit, bicycle and pedestrian modes; supports compact, mixed-use development; reduces carbon footprints, and contributes to decreases in both traffic congestion and volumes. The City shall approach transportation issues with an eye to the prevention of future challenges, as well as seeking to remedy existing problems and support sustainable development.

A transportation implementation plan is needed to attain this vision while coordinating and integrating its elements into other planning areas such as land use and economic development.

9|B **Issues & Priorities**

9|B-1 Transportation and Land Use

For both residential and non-residential development, promoting a more compact land use pattern that can be efficiently served by multi-modal transportation systems is a priority.

9 | B-1a **Residential Development.** The residential neighborhoods within Lebanon's core areas are relatively densely developed and are located in proximity to the central business districts. These core areas are surrounded by sparsely populated residential and agricultural/forest land. The scattered residential development that has occurred in those outlying areas - such as Hardy Hill, Sunset Rock, Stevens Road, and Poverty Lane - is not efficient from a transportation standpoint due to its distance from commercial, civic and employment areas. This development pattern is stretching the City's services and infrastructure, in addition to the transportation system. Scattered rural residential development cannot be efficiently served by public transit and is too spread out for most residents to walk or bike to their destinations.

9 | B-1b **Nonresidential Development.** The commercial development that has occurred in Lebanon in recent decades is expansive and linear, especially along Route 12A. The Route 12A commercial district is a destination for shoppers from a large market area, which makes congestion and traffic accidents a particular concern. Excessive access points and turning conflicts along the main thoroughfare and throughout parking areas exacerbate collisions. This adds costs to the community in terms of staff time for police, fire and ambulance service, traffic congestion, and damage to personal property. Route 120, from downtown Lebanon to Hanover, is already experiencing similar challenges as it develops, and efforts are needed now to avert the creation of the traffic prob-

[key points](#) | [vision & purpose](#)

- Support regional growth and improve mobility, quality of life and neighborhood character through provision of a balanced, integrated multi-modal transportation system.
- Promote compact, mixed-use development that will increase the efficiency of the City's transportation network.
- Reduce the City's carbon footprint, decrease traffic congestion and promote healthier lifestyles by increasing transit use, walking and bicycling.

[key points](#) | [issues & priorities](#)

- Promote a more compact land use pattern that can be efficiently served by a multi-modal transportation system.
- Coordinate transportation and economic development to provide those living and/or working in the City access to viable transportation choices.
- Establish and protect the City's green infrastructure including trails, greenways and riparian corridors that serve as non-motorized transportation connections.
- Promote active living, biking and walking as part of the daily routine, which provides dramatic improvements in public health.

key points | existing conditions & trends



- Lebanon’s location at the intersection of the region’s major transportation routes contributes greatly to the City’s economic vitality and quality of life.
- Traffic volumes and congestion have increased on major highways in the City, while Lebanon’s rural roads retain much of their scenic character.
- Bridges are essential to the City’s transportation network and the regional economy, but are vulnerable to damage from storms or other disasters, as well as to degradation due to age and limited maintenance.
- There is a network of sidewalks that allows residents to walk within Lebanon’s two core areas, but there is limited connectivity between them, as well as very limited or inadequate facilities within other major transportation corridors for pedestrians and bicyclists.
- Advance Transit provides regular scheduled service in the City and region, and is primarily structured to serve employees and shoppers with destinations in the Lebanon-Hanover-Hartford employment center.
- A short segment of rail line within the City has recently been reactivated for commercial freight traffic, while the remainder of the corridor provides valuable recreation and bike/pedestrian infrastructure as the Northern Rail Trail.
- The City of Lebanon owns and operates an airport for general and commercial aviation with service to selected major cities in the Northeast.
- The core area of downtown Lebanon is well served by parking facilities designed around the existing pedestrian-oriented village center, while additional parking is needed for the West Lebanon Central Business District.
- Coordinated efforts by the region’s employers, local government, public entities and non-profits continue to lessen travel demand rather than create additional infrastructure to support more single occupant vehicles.

lems evident along Route 12A. A more compact, mixed-use development pattern would be less auto-dependent, allowing people to safely walk or bike between destinations and increasing the efficiency of public transit.

9|B-2 Transportation and Economic Development

Sustainable economic development can be facilitated, supported and coordinated by a well-executed, balanced transportation plan that reduces the resources required for businesses to succeed (e.g. less required parking, shorter length of utility infrastructure and more users per increment defraying cost, etc.). Creative economy and quality of life are also supported by effective coordination of transportation and economy through facilitating varied living styles and enabling viable choices for travel. Quality and diversity of employment opportunities abound when the cost to access places of work diminish to a point where those with economic challenges can have affordable access to workplaces and shopping. More effective coordination of transportation and economic development is needed to provide those living and/or working in the City access to viable transportation choices for their journey between home and work and to other destinations in the City and region.

9|B-3 Transportation and the Environment

The connection between transportation and the environment is often known as “green infrastructure”. Green infrastructure includes trails, greenways, and riparian corridors that can constitute key transportation connections for non-motorized modes in less built-up areas and a means of bringing more of the natural environment into built-up areas. Advantages go beyond transportation; green infrastructure corridors can provide great benefits for air pollution control and stormwater management.

9|B-4 Transportation and Health

Active living has come to mean biking and walking as part of the daily routine which has dramatic improvements in public health. By having more pleasant and more convenient ways to walk and bike as a part of daily life, people tend to choose walking and biking in greater numbers.

9|C Existing Conditions & Trends

9|C-1 Transportation Network

The intersection of Interstates 89 and 91 in nearby White River Junction, Vermont and the unique and desirable geography of the Upper Valley create conditions for an ideal transportation network. US Routes 4 and 5 and NH Routes 12A, 10 and 120 further improve the City’s accessibility from surrounding towns, facilitating traffic flow to the employment centers of Hartford, Lebanon and Hanover. Lebanon’s Airport, the Concord-White River rail corridor, and transit service all diversify the transportation system. This system has contributed greatly to Lebanon’s and the Upper Valley’s economic vitality and quality of life. At the same time, growth in traffic and congestion has been one of the major by-products of the economic expansion experienced in the City and region in recent decades.

Increasingly, the de-centralized nature of the housing market has contributed to longer commutes for Upper Valley workers. This dispersed residential pattern is difficult for transit or ride-share to serve effectively, so like most rural areas, there is a heavy reliance on automobile use. This regional land use pattern has dramatic impacts upon the highways and bridges in the City of Lebanon, travel time for commuters, the quality of the environment, the safety and character of neighborhoods, and the cost of municipal services.

9 | C-2 **Roads**

9 | C-2a **Inventory.** The state maintained highway system consists of four classes: Class I, the primary state system; Class II, the secondary state system; Class III, State recreational roads; and Class IIIa, boating access roads. The municipally maintained highway system consists of three classes: Class IV, urban compact section highways; Class V, town or City roads and streets; and Class VI, all other public ways including roads subject to gates and bars.

9 | C-2b **Roads and Land Use.** Streets and roads serve many functions. First, they act as corridors for conveyance of people, either walking, biking, in transit or in cars. They also serve as corridors for utilities, stormwater management and urban green areas with tree shading and landscaping. They are also public spaces encouraging interaction between neighbors. They facilitate access to buildings and different land uses. They can also communicate with travelers, telling them that they are in a special place and how they are expected to behave while there with signage and landscape cues. Roadway improvement projects, zoning district boundaries, and individual subdivision, zoning, site plan, driveway permit and building permit applications, should be undertaken so that roads remain appropriate to the abutting properties and compatible with adjacent land uses. Care should also be taken when laying out new roads so that the new infrastructure fits the intended land use and vice versa.

9 | C-2c **Traffic Safety and Congestion.** Traffic volumes have greatly increased on the major highways in Lebanon and can be expected to continue to grow along with the Upper Valley’s continued economic growth. Traffic congestion at certain key locations, particularly Route 120 commuter traffic and Route 12A shopping traffic, is not likely to improve substantially without a more comprehensive investigation of managing demand and network-wide improvements.

Traffic congestion is a problem along many of the major highways throughout the City, such as Route 12A, Route 120 and Route 4. Congestion on Route 12A, for instance, has impacts that go beyond delays for shoppers, including reduced mobility and increased emergency response times for residents of Plainfield.

When traffic congestion reaches a saturation point, usually during peak hours, motorists seek alternative routes, often through residential neighborhoods, and/or become less safety conscious. Congestion also exacerbates the problem of through-traffic trucking on local roads. As a result of the weight limits on Interstate 91 in Vermont, many heavy trucks come through downtown West Lebanon.

Speeding can also arise from road facilities that are not designed appropriately for the context. Wide roads in residential neighborhoods are typical examples of this. When access is too cluttered and speeds are too high, this can also lead to safety problems and accidents, as witnessed on Route 12A.

Redundancy (the availability of multiple routes for travel from point A to point B) is desirable to reduce congestion and to provide improved access to major destinations such as Dartmouth Hitchcock Medical Center.

Road Class	Miles
Interstate	23.6
State Maintained	19.9
City Access - Public Works Road	5.3
State Road - City Maintained	8.4
Private Business Access	6.7
Class V	86.0
Class VI (non-maintained)	9.0
Private Road	12.0

lebanon road mileage by class



old pine tree cemetery road

9|C-2d **Scenic Roads and Rural Character.** Lebanon has the following designated scenic roads:

- Stevens Road and Sunset Rock Road (1989)
- Eastman Hill (1990)
- Poverty Lane, Slayton Hill and Great Brook Road (1993)
- Old Pine Tree Cemetery Road (2003)

Preserving the historic nature of these roadways helps to sustain the rural feel of the community. The narrow, gently curving designs, stone walls, and surrounding vegetation evoke rural and historic character. A visually pleasing environment makes a significant contribution to a community's overall quality of life. The erosion of the visual character of a community can have not only psychological impacts, but also very real economic impacts through the loss of tourism and an inability to market the community to prospective businesses and residents. As with other environmental impacts, visual degradation can happen incrementally, slowly changing the character of a community.

9|C-3 **Bridges**

Bridges are essential elements of the City's transportation network; they often present the weakest link in that network and often are more complicated to build or maintain than other parts of the thoroughfare. Many structures are in various states of disrepair, having greater exposure to the elements and greater cost to repair. The location of bridges within the floodway also presents a potential safety hazard as it may isolate portions of the community if washed out in a flood event, and may severely limit emergency vehicle access. There are four state-owned and two city-owned bridges in Lebanon that appear on the New Hampshire Department of Transportation's Red List. Bridges on the Red List require interim inspections due to known deficiencies, poor conditions, weight restriction or type of construction.

In the bi-state Upper Valley economy, the two Connecticut River crossings are essential to the City as links between the Lebanon and Hartford, VT employment centers and residential areas, as well as for emergency vehicle access. The regular maintenance of these structures is paramount for the safety and economic well being of the City and its residents. In addition, pedestrian and bicycle-related improvements need to be incorporated into regular maintenance work and major alterations to the City's bridges.

9|C-4 **Pedestrian and Bicycle Facilities**

A network of sidewalks allows residents to walk within Lebanon's two core areas, but there is limited connectivity between them, as well as very limited or inadequate facilities along the Route 12A and Route 120 corridors. The compilation of a complete sidewalk inventory of the City has been undertaken, and will be a component of an overall pedestrian/bikeway plan in accordance with the City's pursuit of a multi-modal transportation system.

The Northern Rail Trail provides excellent recreational and transportation access for bicycles and pedestrians from downtown Lebanon to Enfield and beyond. The extension of the Rail Trail to connect with West Lebanon would be extremely beneficial for improved access for everyone, as well as making the Miracle Mile and West

Lebanon shopping districts accessible by bicycle, and should be actively pursued. The Mascoma River Greenway Project aims to make this connection whether or not the railway can be used as a base.

For cyclists, there are available five-foot or wider shoulders in numerous locations throughout Lebanon; however, numerous inconsistencies exist and many areas have no shoulders at all, which does not allow cyclists safe continuous access throughout the City. In addition, many bridges, such as the US Route 4 Bridge over the Connecticut River between West Lebanon and White River Junction, are quite narrow and pose a significant hazard for cyclists as they compete for access with cars and trucks. Other obstacles such as on-street drainage grates and vertical curbs can pose a safety hazard to cyclists and limit accessibility for anyone but the most confident cyclists.

The Lebanon Pedestrian and Bicyclist Advisory Committee (LPBAC) was created in 1995 with a charge to make the City more walkable and bikable by facilitating, enhancing, and encouraging safe pedestrian and bicycle travel and connectivity among the related infrastructure. LPBAC has completed an interim report and master plan for pedestrian and bicycle facilities. The New Hampshire Department of Transportation provides a variety of resources supporting pedestrian/bike infrastructure, including managing the Transportation Enhancement funding program, which is geared towards bicycling and pedestrian improvements.

The “Blueprint for Community Trails” (2007) report summarizes a vision for a citywide bicycle- and pedestrian-trail network with connections to the surrounding towns of Hanover, Enfield, Plainfield, and Hartford. Based on a public workshop in March 2006, that vision will need coordination and prioritization in the larger context of the updated Lebanon Master Plan (2011), including review by related City boards/committees and staff.

9 | C-5 Public Transit

Advance Transit (AT) is the primary fixed-route transit provider in the Upper Valley, providing regular scheduled bus service to the core Lebanon/Hanover/White River Junction area in addition to Enfield, Canaan, Norwich, Wilder and Hartford. Additionally, AT provides shuttle service for Dartmouth Hitchcock Medical Center and Dartmouth College.

Advance Transit works closely with communities, business and industry to develop and maintain transportation options for Upper Valley residents and employees. AT primarily operates around the denser populated core of the Upper Valley. However, many of the individuals that are transit-dependent (elderly, disabled, and lower-income) are located further away from the core on the outer reaches of the service area. This makes service economically difficult for the transit provider and logistically difficult for users. It also increases the demand on an already short supply of park and ride lots.

There are other transportation providers or public-private partnerships operating in the Upper Valley whose services are primarily for the elderly or disabled, as well as for linkages to area employers from other regions. Grafton County Senior Citizens Council and United Developmental Services provide para-transit (door-to-door) service to the elderly and disabled in the Lebanon area. Stagecoach Transportation Services provides similar service in neighboring Vermont communities and Community Transportation Services does the same for Sullivan County.



route 10 near sachem village, west lebanon



downtown lebanon transit stop

9|C-6 Rail

Lebanon is home to a portion of the former Boston and Maine freight rail line. Except for approximately 2 miles from the Connecticut River easterly, commercial freight traffic along this White River Junction, VT to Concord, NH railroad line has not been active for more than 30 years. Part of this line now provides valuable recreation and bike/pedestrian infrastructure as the Northern Rail Trail.

There is currently no passenger rail service within the community although it is a future possibility. The nearest passenger rail line, provided by Amtrak, runs through White River Junction, Vermont, providing north/south connections between St. Albans, Vermont and New London, Connecticut along the Central Vermont rail line.

There is currently an investigation into the development of high-speed rail between Boston and Montreal. Phase One of the study is complete, and indicates that potential ridership is high enough to warrant further study. The next phase will evaluate the costs and benefits of the service and may be of interest to Lebanon, as a portion of the corridor could be within the City. Additionally, Lebanon has recently joined the New England Regional Rail Coalition, an advocacy group for enhanced rail service in New England.

9|C-7 Airport

The City of Lebanon owns and operates an airport for general and commercial aviation with scheduled daily service to Boston and White Plains, New York. The facility includes an air traffic control tower, two runways and hangars.

A 2008 survey indicated that general aviation, particularly corporate jet activity is the most critical economic component of the airport. The airport accommodates regional and national corporate aviation needs, providing access to Dartmouth Hitchcock Medical Center (DHMC) and Dartmouth College, as well as other businesses and institutions.

“Fly Lebanon,” a partnership between the City of Lebanon and the Greater Lebanon Area Chamber of Commerce, has been working to promote incentives for increased passenger use of the airport. In recent years, several factors have challenged commercial air service to and from Lebanon, including the airport’s small size and population base; competition from larger airports with low-fare carriers in Manchester, NH and Burlington, VT and restructuring of the airline industry.

9|C-8 Parking

Parking is an essential component of transportation, but also of economic development as it contributes to the access of business establishments. However, the need for parking is often dependent upon the proximity of differing land uses, from residential to commercial.

The core area of downtown Lebanon is somewhat well served by parking facilities designed around the existing pedestrian-oriented village center. In this area, people may park on the street or in lots located behind buildings in the downtown location and walk from one shop to another. A cluster of key services in the Lebanon Central Business District, such as the post Office and library, are located within very close proximity making this an attractive and efficient setting. These existing mixed-use areas should be encouraged, expanded and replicated

in other areas. The same is not true for West Lebanon. Here, while there is some on-street parking, there is not enough for the visitors to the village.

9 | C-9 Transportation Demand Management

The Upper Valley Transportation Management Association (UVTMA) is a current initiative by employers and public entities to lessen travel demand rather than create infrastructure to support more single occupant vehicles. Transportation demand management (TDM) consists of a broad range of strategies that are intended to reduce and reshape demands on transportation infrastructure including employer flextime and staggered shifts, parking management, commuter incentives, and bike and pedestrian improvements.

Upper Valley Ride-share (UVRS), provided by Advance Transit, maintains a database of area commuters carpooling and offers an online 'ride board' to facilitate carpooling and ride sharing. There are no formal park and ride lots in Lebanon and few with excess capacity serving the job center. Park and ride lots are integral in facilitating inter-modal connections and supporting transit use. Large new lots in fast growing areas such as Grantham and Enfield enable additional car- and van-pooling. Major employers are also exploring this concept by developing satellite parking lots for employees and serving them with bus services in order to limit the development of parking on valuable land.

In 2009, federal funds totaling \$500,000 were secured for exploration of an inter-modal transit facility to serve the Upper Valley. The concept included parking for several hundred vehicles, whose drivers could then board buses and/or other forms of transportation to go to work and elsewhere, including destinations outside the region. Although the effort did not result in any infrastructure improvements, it highlighted the need to continue exploring enhancements to transportation infrastructure within the region.

9 | D **Future Challenges & Opportunities**

9 | D-1 Alternative Land Use and Traffic Approaches

Traditionally, Lebanon has viewed its transportation system as consisting of a roadway network emphasizing automobiles, with some alternative transportation facilities. The future challenge is to recognize the connections between key places in Lebanon as a web of interconnecting options that reinforce and sustain one another.

For people to choose alternative transportation over use of their automobiles, there must be viable alternatives to driving, such as the following:

- Walking routes must be safe, direct, and attractive.
- Homes must be close to workplaces and services.
- Land uses and streetscapes must be human-scaled, balancing pedestrian amenities with automobile access.
- Public streets must support a balanced variety of uses, with the balance being different for different streets based on their function.

key points | future challenges & opportunities

- Lebanon needs a safe, interconnected, multi-modal transportation network that links residential areas to commercial, educational, recreational and cultural centers.
- There needs to be ongoing consideration and regional discussion concerning how to mitigate traffic congestion within Lebanon’s main travel corridors. The City should take steps to protect and enhance the character of its scenic highway corridors.
- The City should encourage and promote the development of interconnected networks of sidewalks, bicycle routes and paths, and other recreational trails that facilitate better transportation throughout the community.
- The City should seek to make improvements to better support mass transportation and should continue to advocate for expanded transit service within the region.
- The City should carefully weigh the potential economic, environmental and quality of life benefits and costs that restoring major rail lines through the region would have and advocate for the community’s best interest with the railroad and state.
- Parking should be planned with consideration for the overall goal of encouraging a multi-modal transportation system.
- Lebanon needs more effective transportation management strategies, in addition to improved facilities, to reach its goals of a better performing transportation system.



- Transit service must be convenient, reliable, and timely.
- Bicycle routes must be safe and destinations must have convenient and secure parking for bicycles.
- Ride-share opportunities and incentives not to drive must be provided.

Development has been oriented to the use of automobiles at the expense of other transportation modes. The goal should be to create developments that include a safe and ample multi-modal transportation network linking residential areas to commercial, educational, recreational, and cultural centers. This network would include limiting roadway widening projects in favor of safe and attractive facilities for pedestrians, bicycles and transit. The network must be complete for all mode paths; sidewalks that just end, bus stops in drainage ditches, and bicycles crossing high-speed thoroughfares are all examples of incomplete mode paths. Complete streets are a tool to help ensure a complete mode path in the network, creating a way for all modes that use the road segment to share the right-of-way safely and efficiently.

Future transportation facilities that require consideration include inter-modal stations, rapid-transit stations and stops, green infrastructure, better gateways and transitions between changing corridor demands and other components necessary to complete trips. They may also entail different modes than those currently served by Lebanon. Examples of these may include river travel and horse trails, as well as a connector to I-91 that includes crossing the Connecticut River by gondola, tram or monorail. Inter-modal stations may offer bike repair and storage facilities or easier means to put bikes on transit. They may offer ride-share, car-share or smart-carpool facilities. Stations and stops may promote more rapid transit by having dedicated lanes, at-level entry for quick loading and unloading, and easy transfers between routes and modes.

9 | D-2 Roads

9 | D-2a **Traffic Congestion.** Current projects under construction by NHDOT to address traffic congestion along Route 12A include raising and lengthening of the Exit 20 bridge overpass to allow for more lanes underneath and the widening of Route 12A between Airport Road and the K-Mart plaza.

Alternatives to improve access to DHMC were investigated in the 1988 Upper Valley Transportation Study, which predated DHMC’s move to Lebanon. The study included a connector road from DHMC to Route 10 or I-91. This alternative was projected at that time to significantly reduce traffic at existing river crossings. However, a connector only to Route 10 will more than likely not reduce traffic through the West Lebanon Central Business District or downtown Hanover.

Access management, telecommuting, ride-sharing, flexible work schedules, transit and other alternative transportation modes are all practices that can help mitigate traffic congestion. In addition, zoning that encourages mixed-use development can help reduce the distance of a commute or lunch-hour trips. There should continue to be thoughtful consideration and regional discussion concerning how to mitigate traffic congestion within the main travel corridors. Future decision-making relative to land use, site development, and infrastructure improvements will need to include new approaches to mitigate future traffic and its demands on the City’s transportation system. It will be difficult to solve Lebanon’s future transportation issues in isolation or with strict engineering or road building solutions. It will require a well-planned and integrated transportation system that supports all modes of transportation.

9 | D-2b **Scenic Roads and Gateways.** Many of Lebanon’s highways are still scenic and should remain so. Effort should continue to support the City’s Scenic Roads Ordinance, and to encourage citizen input via petition identifying and designating more local scenic roads. Care should be taken when the City works on scenic roads, and stone walls and significant trees along these roads should be preserved. While balancing public safety concerns with rural design can be challenging, it is important to design standards for scenic roads that compromise neither safety nor local character. The City should begin to set design guidelines for the visual landscape.

Scenic roads will also be protected by directing commercial and residential development towards already developed areas. When development does occur along the City’s scenic corridors, it should be appropriately sited and screened so as to reduce its negative visual impact. Green buffers, conservation design, and landscaping in harmony with the natural and historic features of the landscape, all contribute to preserving scenic values. A flexible scenic corridors overlay district would help protect the City’s character from inappropriate development and land uses.

The City should also help maintain the scenic appearance of its entry ways by creating landscaping standards for those portions of entry corridors not already built up, at I-89 and Routes 120, 10, 4 and 12A. Using gateways to help guide developments away from rural areas towards existing built-up areas will benefit the downtown economies, in addition to maintaining scenic character. The City should strive to improve the appearance of more developed corridors, as well, by avoiding haphazard, unsightly, or inadequate landscaping that does not protect and conform to the natural features of the area.

Better gateways may add aesthetic value to Lebanon, but also could better communicate travel direction, routes and behavior to travelers. Similarly, better transitions between corridors may improve mode flow and safety and again communicate changes in travel behavior like speed changes (for all modes) and changes in mode priority, e.g. from a bike boulevard to a pedestrian greenway (where both modes are allowed, but one has priority). Green infrastructure can be enhanced with more trails and greenways and riparian ways adding both to connections for travelers and enhancing Lebanon’s environment.

9 | D-3 **Pedestrian and Bicycle Facilities**

There continues to be high public interest in the development of pedestrian and bicycle infrastructure, as well as many practical reasons to prioritize concrete actions on improving these modes of the City’s overall transportation plan, including aesthetic, environmental and public health benefits. As such, the City should encourage and promote the development of interconnected networks of sidewalks, bicycle routes and paths, and recreational trails that facilitate better transportation throughout the community, especially to meet the needs of the young, elderly and other populations who do not drive. This initiative is especially critical to ensure that the City is in compliance with the Americans with Disabilities Act (ADA).

Automobile-centered growth has generally resulted in diminished bicycle and pedestrian accessibility. All transportation needs should be addressed in all roadway projects so that that attractive and safe facilities are available throughout the community, such as complete streets.



route 120 northward from exit 18

9 | D-4 Transit

Ridership on all Advance Transit (AT) routes has increased dramatically in recent years. Improved conditions, however, such as a network of park-and-ride lots, would better support mass transportation. For example, there are areas along the Route 120 corridor that do not have park-and-ride lots for commuters wishing to use bus service. A good location for such lot could be at Exit 18 of I-89. A new transit route linking the Upper Valley with the Precision Valley via Route 120 is also needed.

Pedestrian connections between employers, residents, and bus stops are minimal throughout the area, and bus stops are often inhospitable, provide no shelter, and are not plowed in the winter. Financial support for Advance Transit operations is not secure and may be limiting the expansion of service in several key areas. Linear “strip development” in Lebanon, such as that along Route 12A, is particularly difficult for transit to serve. Buses need to compete with other passenger vehicles for roadway space, causing delays and scheduling difficulties. Likewise, isolated industrial parks pose problems reaching and servicing employees. On a site-specific level, the placement of parking in front of buildings and other design factors contributes towards a heavy reliance on vehicular travel and is a disinvestment in transit service. The City should work in cooperation with Advance Transit to address these issues, as transit is a key element in the multi-modal approach.

9 | D-5 Rail

Many of the issues affecting rail transportation, both passenger and freight, are beyond local control. However, the City should consider the potential economic and environmental benefits that restoring major rail lines through the region could encourage. For example, more rail use could alleviate road congestion and costs related to road maintenance. On the other hand, the revival of rail transportation could negatively affect residential neighborhoods that have grown accustomed to cleaner, quieter surroundings since the decline of the railroad. The City’s continued involvement in decisions about any rail line is critical, as the local impact will be significant and there are many competing interests.

9 | D-6 Parking

Parking shall be planned with consideration for the overall goal of encouraging a multi-modal transportation system. Needs of pedestrians, bicycles and transit should be balanced with the needs of individual automobile users as well as aesthetic considerations.

Bike parking and stations also need to be provided if bike travel is to become truly viable. Facilities need to be provided at major destinations and bus stops to allow bicycles riders to access places on their bikes and extend their range on transit facilities.

9 | D-7 Management Strategies

9 | D-7a **Access Management.** The solution to preserving investment in highways and improving safety is to not always increase roadway capacity but to manage access. Access management uses a variety of techniques to minimize conflicting traffic movements and optimize roadway capacity and system efficiency. It involves limiting overly abundant, poorly designed access points and driveways. Often access management can be

improved by focusing on site improvements, such as defined entry ways and exits, shared driveways, and connections between adjacent subdivisions. Effective access management:¹

- Reduces crashes by as much as 50%.
- Increases capacity 23-45%.
- Extends life of the highway
- Treats applications for access permits consistently.
- Protects investment in abutting property.
- Reduces travel time and delay by 40-60%.
- Decreases fuel consumption by 35%.
- Reduces vehicular emissions.
- Reduces transportation costs.

Zoning can help by coordinating anticipated traffic volumes and speeds with frontage, lot size, curb cut, and signage requirements and requiring development that concentrates growth and mixed land uses in nodes to minimize transportation demand in key highway corridors.

Common access management techniques include:

- **Medians.** Crash rates on major roadways with jersey barriers or solid (non-traversable) medians have been found to be substantially lower than undivided roadways or roadways with a continuous two-way left turn lane (TWLTL), such as Route 12A. Safety is also reduced where median openings are too close.
- **Auxiliary Lanes.** Left and right turn bays minimize the conflict between turning vehicles and through traffic.
- **Signalized Intersection Spacing.** Long, uniform signalized intersection spacing facilitates the use of timing plans that can respond to peak and off-peak traffic conditions.
- **Driveway Location and Design.** Driveways should be spaced a minimum distance apart, the distance depending on traffic speeds and the road's functional classification.
- **Corner Clearance.** Corner clearance is the distance from an intersection to the nearest access connection. Appropriate corner clearance standards preserve good traffic operations.
- **Joint and Cross Access.** This is the requirement to consolidate driveways serving more than one property and providing circulation between adjacent parcels. This will help separate driveway spacing as well.
- **Reverse Frontage.** Lots abutting the thoroughfare should not be allowed direct access to the thoroughfare. Instead an interior street should be required, which would eliminate conflicts between high-speed traffic and lower entrance/exit traffic. Access to the thoroughfare is provided at locations that can be designed safely.

¹ *Access Management, Location and Design; US Department of Transportation, Federal Highway Administration, National Highway institute, April 2000.*

Route 12A in Lebanon is undoubtedly the best example of an area that could benefit from extensive and well-planned access management measures. The Route 12A problems include poorly coordinated on-site circulation, including excessive curb cuts, which contributes to multiple traffic conflicts, causes an increase in traffic congestion, and reduces capacity and pedestrian safety. Redundant access points should be evaluated for possible closure in the context of site plan review for future developments. Already existing redundant access points should be closed. More attention to access management will improve Routes 10 and 4 as well.

9 | D-7b **Concurrency Management.** Concurrency management may also be beneficial to Lebanon. This technique regulates traffic congestion by identifying tolerable levels of congestion, which could be used as a basis for development permitting and municipal capital investments. This is important because often the increased costs of providing those additional services and infrastructure improvements are not fully realized by the increased tax revenues generated by those new developments. The City must balance an adequate and equitable transportation system for its residents and businesses with cost of constructing and maintaining such a system.

9 | D-7c **Traffic Calming.** Thoroughfare design can have a dramatic impact on driver behavior. Design elements, often referred to as traffic calming, encourage drivers to slow down and aesthetically enhance a corridor, both of which are important to pedestrian and bicycle safety. Lebanon has several areas that may benefit from traffic calming, most notably, the traffic circulation around Colburn Park. There have been pedestrian fatalities in this area in recent years. The multiple travel lanes with no lane markings, high vehicular speeds, diagonal parking, exceedingly long crosswalks with no islands-of-refuge, and high vehicular counts combine with the many pedestrians crossing the roadway to make a dangerous area for pedestrians.

Traffic calming techniques can be used to slow down and control traffic on streets where it is necessary for motorized traffic, pedestrians and bicyclists to coexist. Traffic calming measures include:

- **Narrowing Streets.** Wide streets often encourage faster speeds. Extending curbs, eliminating multiple lanes, and adding bicycle lanes can help reduce speeds.
- **Breaking Up Straightaways.** Straightaways on roads encourage speeding. Making physical alterations such as speed humps, speed tables, rumble strips, chicanes, and roundabouts discourage high speeds.
- **Redesigning Intersections.** Realign and redesign intersections to be more pedestrian friendly by adding “neckdowns” (a curb and esplanade extension toward the center of the roadway that narrows a travel lane or street causing a reduction in speed) and changing signal times to add more time for walking across streets.

Mt. Support Road, Heater Road and Mascoma Street are among roads that could benefit from traffic calming measures. It is essential that the design and implementation of traffic calming measures be based on a comprehensive review of the area roadways to ensure that their intended purpose is met and that they are appropriate for the roadway and existing conditions.

Gould Road, Dulac Street and Maple Street provide success stories where speed tables have been installed and seem to be working well to calm traffic.

9 | D-7d **Complete Streets and Complete Networks.** The City strives toward a transportation policy and development plan that is based on the Complete Networks and Complete Streets model, which includes safe access for all users (including pedestrians, bicyclists, motorists and transit riders).

Complete networks promote continuous connections of all places by all modes supported by the City. If one were to travel to a given destination via bicycle, the traveler should be able to ride on comfortable and safe routes the entire way to get to that destination and have appropriate facilities for storing the bicycle once there. Similar considerations are necessary for the other modes chosen to serve Lebanon, ensuring a viable “complete trip” for the entire length of the trip. If a traveler cannot walk to a convenient bus stop or one cannot get into the building from the parking lot, the mode is not viable. If a given route for a given mode is too circuitous, again the mode becomes less viable, less “complete”.

Complete streets are designed for all potential right-of-way users, integrating safely all mode routes in an efficient use of the street corridor. This does not mean that all modes use all street segments. It would be prohibitively expensive and inefficient to accommodate public transit on all corridors, but all viable modes should have a route available and those routes should all safely share the right-of-way on the streets where they co-locate. Finally the facilities selected for the modes on a given corridor should be appropriate to local context and needs, and should adhere to community vision, for instance being of the proper scale and using signage consistent with that of the neighborhood.

Previous planning initiatives and zoning requirements once favored vast paved areas built for maximum demand that are often under used. Changes to the zoning ordinance in 2008 promoted the current goal of optimizing land use and encouraging complete street downtown cores that are bike and pedestrian friendly. This change in goals and strategy should be fully supported to create a multi-modal transportation system. Parking must be optimized by coordinating uses and facilities to encourage a multi-modal system. The needs of pedestrians, bicyclists, transit, and aesthetic considerations should be balanced with those of automobile users, especially in central business district areas.

9 | D-7e **Performance Measures.** Another future challenge is to transition from simply measuring and monitoring facets of transportation, e.g. volume, to understanding the net desired performance of transportation in achieving more sustainable and satisfying outcomes, e.g. more volume per incremental investment or per desired destination. Street metrics must include other considerations than level of service and automobile mobility in order to provide better performing, better integrated modal facilities and ensure the safe interaction of the multiple modes on a given corridor. To rise to these challenges, Lebanon must examine its transportation management strategies as well as its facilities to arrive at this higher performing network fabric connecting the places that Lebanon values.

9 | D-7f **Strategic Transportation Funding.** To assure adequate, efficient, and effective transportation development, as outlined in this Master Plan, the City of Lebanon shall actively pursue various forms of funding. Funds gathered from impact fees, grants, and other sources shall be used to pay for transportation studies and uses within the City, encompassing a regional scope, including but not limited to:

- Periodic corridor studies
- Multi-modal center(s) and related system(s)

- Traffic flow and improvement studies
- Freight movement studies and programs
- Mass transit, local and regional bus transit
- Carpools and park-and-rides
- Rail feasibility studies and programs
- Bicycle and pedestrian network and infrastructure studies and uses

Application of funds may include, but is not limited to:

- Upgrading and replacement of outmoded and deteriorating existing transportation infrastructure
- Developing and constructing a multi-modal transportation center(s) and system(s)
- Developing pedestrian and bicycle access to existing retail, employment, and other job destinations
- Creating incentives for alternative methods of transportation, including public transit, carpools, walking & biking
- Traffic calming techniques
- Creating within Lebanon the concept of “Complete Streets”

The City shall actively pursue federal, state, and regional monies for projects identified in this Master Plan. The City shall also actively pursue public and private grants to achieve the same objectives as listed above, including the use of public/private partnerships.

Outcomes & Strategies

OUTCOME 1 Promote a more compact land use pattern that can be efficiently served by a multi-modal transportation system.

STRATEGIES

- 1 Encourage developments that are easily served by public transit.
- 2 Assist, train and partner with developers to create transit oriented development with front walks along streets, garages at the rear of properties, front porches, mixed land uses and sidewalks.
- 3 Address parking needs to ensure adequate but not excessive parking for development.
- 4 Ensure adequate on and off-site traffic circulation for commercial development.

ACTIONS

- 1 Require transit and support facilities during subdivision and site plan review.
- 2 Develop and implement a citywide traffic plan that discourages through traffic in residential areas by using traffic calming measures.
- 3 Develop a citywide transportation master plan.
- 4 Develop a long range redevelopment plan for Route 12A, which balances environmental and transportation concerns with mixed-use development and pedestrian/bicycle movement.

OUTCOME 2 Coordinate transportation and economic development to provide those living and/or working in the City access to viable transportation choices.

STRATEGIES

- 1 Encourage businesses and industries to provide commuter benefits.
- 2 Create local access management policies in an effort to ensure that future development and road access adhere to sound access management principles.
- 3 Manage the growth in traffic volume by promoting alternatives to vehicle trips, such as telecommuting, ride-sharing, and transit use.
- 4 Explore using remaining rail connections to move heavy loads across the Connecticut River from western New Hampshire to eastern Vermont.
- 5 Implement techniques, such as transportation demand management, as the preferred alternative to increasing highway capacity.
- 6 Work with Advance Transit to implement the recently completed bus stop feasibility study.
- 7 Establish a system of park-and-ride lots along major travel corridors, especially outside of the City.
- 8 Continue financial support of Advance Transit.
- 9 Support and promote the use of Upper Valley Ride-share.
- 10 Support transit routes to Alice Peck Day Memorial Hospital and other underserved destinations.
- 11 Continue to work with surrounding communities and the Regional Planning Commission to seek local solutions for regional transportation problems.
- 12 Continue to cooperate with the Upper Valley Transportation Management Association on transportation demand management initiatives.

ACTIONS

- 1 Pursue an access management memorandum of understanding with the New Hampshire Department of Transportation for Route 12A and Route 4, at a minimum.
- 2 Create and implement access management retrofit plans on Route 12A, Miracle Mile, and Mechanic Street in Lebanon and Routes 10 and 4 in West Lebanon.
- 3 Coordinate with state and federal transportation authorities to take action needed to ensure that the heaviest trucks and equipment continue to have access to I-89 and its bridges, as well as I-91.
- 4 Work with the New Hampshire Department of Transportation to develop a corridor plan for Route 120.
- 5 Improve facilities at urban transit stops, such as pull off areas, and assist with bus shelter construction, snow removal, and parking facilities.
- 6 Provide City employees with incentives that promote the use of public transportation.
- 7 Continue to be active on the Upper Valley Regional Planning Commission's Transportation Advisory Committee.
- 8 Continue to use pavement management systems to efficiently maintain roads and streets.
- 9 Carry out the ten year plan with the aid of the New Hampshire Department of Transportation and other possible funding sources.
- 10 Purchase hybrid vehicles using biodiesel and/or other alternative fuels for all appropriate City vehicles.

OUTCOME 2 Coordinate transportation and economic development to provide those living and/or working in the City access to viable transportation choices.

STRATEGIES

- 13 Continue to work with Hanover, the state Department of Transportation, and UVLSRPC to address congestion on Route 120 and prevent future problems as the corridor develops.
- 14 Be a leader in developing creative solutions to transportation problems, including the future use of high occupancy vehicle lanes to aid transit buses.
- 15 Support rail transit along the existing rail line from Bellows Falls and Randolph to Lebanon/Hartford/Hanover for regional commuters.

OUTCOME 3 Identify and protect the City’s green infrastructure including trails, greenways and riparian corridors that serve as non-motorized transportation connections.

STRATEGIES

- 1 Cooperate with groups, such as Friends of the Northern Rail Trail and the Upper Valley Trails Alliance, to maintain and extend the existing rail trail from Lebanon to West Lebanon.

ACTIONS

- 1 Coordinate with the Planning Board, Conservation Commission, Pedestrian and Bicycle Advisory Committee and the Recreation Department to develop a trails master plan.

OUTCOME 4 Promote active living, biking and walking as part of the daily routine, which has dramatic improvements in public health.

STRATEGIES

- 1 Promote safe intersection design and bicycle, pedestrian, and transit friendly traffic signals.
- 2 Support the Pedestrian and Bicycle Advisory Committee in creating a comprehensive pedestrian and bicycle facilities plan which identifies where linkages can be made and additional infrastructure is warranted, both in and outside the City.
- 3 Provide a landscaped buffer between the sidewalk & roadway of busy & high speed streets, where feasible.
- 4 Promote improved pedestrian facilities throughout the City, including a well maintained, interconnected network of sidewalks, benches, and landscaping that provides shade for pedestrians and attractive, non-obtrusive lighting.
- 5 Promote safe pedestrian accommodations, including curb extensions where appropriate, at crosswalk locations and segregated sidewalks with landscape buffers along all major roadways.
- 6 Promote a consistent network of wide shoulders or bike lanes on rural highways for cyclists and shared use of narrower roads in urban areas with appropriate signage and road markings.
- 7 Provide dedicated bike facilities to allow cyclists to safely travel City roads, including bike lanes and cycle tracks, as well as more bike-focused facilities like multi-use paths and sharrows (shared lanes).

ACTIONS

- 1 Include five foot shoulders in all City and state bridge and road projects to provide safe bicycle and pedestrian access
- 2 Complete the Americans with Disabilities Act transition plan to ensure that public facilities meet ADA guidelines.
- 3 Develop facilities to allow for independent child mobility, such as separated bike paths.
- 4 Install bicycle racks, showers, and lockers in public spaces throughout the community.
- 5 Require developers to install bicycle racks, showers, and lockers as part of site plan approval.

10 |

Recreation

10 | A

Vision & Purpose

The City of Lebanon shall foster a high quality of life by maintaining and enhancing the City’s recreational resources, and striving to provide residents with access to recreation facilities and programs appropriate for people of all ages, backgrounds, interests and ability levels. The City recognizes the important role recreational activities play in creating social ties and a sense of community, teaching positive values like teamwork and fair play, and promoting healthy lifestyles and an appreciation of nature. City parks and open spaces will continue to provide venues for organized sports and informal leisure-time activities, which create a vibrant, fun and stimulating atmosphere that enriches residents’ daily lives. Lebanon’s parks and open spaces will continue to foster a sense of civic pride and community identity, and will be among the amenities that help attract new businesses and residents to the City. The City’s parks and open spaces will be linked to our residential neighborhoods, central business districts, schools, and employment and service centers through an interconnected multi-use path system.

10 | B

Issues & Priorities

10 | B-1

Growing Demand for Recreation Facilities and Programs

The City of Lebanon strives to provide recreation facilities and programming that meets the needs and interests of residents, and to expand recreation amenities to keep pace with growing and shifting demand within the community. To meet future demand, the City will have to be creative in balancing residents’ desires with realistic space and resource limitations.

For example, the demand for playing facilities for school sports activities and Little League regularly exceeds the availability. Team sports are very popular in Lebanon among school-age children, and many seasons there is a crunch when it comes to the availability of facilities. At the same time, many feel that the City should encourage recreation opportunities where residents of different ages can interact. The 2009 Master Plan Survey showed that there is a strong interest in expanding recreation opportunities for young adults, older adults and senior citizens. Recreation planning will need to consider and balance the recreation needs of all residents - from preschoolers to seniors.

By taking measures to make Lebanon a more walkable, livable City with community gathering places, residents of all ages will find creative, unstructured ways to utilize their leisure time. This may slow the growing demand for additional City parks and expanded recreation programs.

10 | B-2

Sustainable Development of Parks and Recreation Facilities

Sustainability as it relates to balancing the demand for development with the desire to maintain open space is a common theme woven throughout and connecting the various chapters of this plan. One of the main issues confronting the City of Lebanon is how to achieve a balance between development and the need for less developed areas devoted to recreational, cultural and community activities for residents, visitors, and the daytime

key points | vision & purpose



- Foster a high quality of life by offering residents a variety of recreation facilities and programs including organized sports, informal natural areas, cultural activities, etc.
- Recognize the important role recreational activities play in creating social ties, fostering civic pride, attracting new businesses and residents to the City, promoting healthy lifestyles, and teaching positive values.
- Link the City’s residential neighborhoods, central business districts, schools, employment and service centers, and parks and open spaces through an interconnected multi-use path system.

key points | issues & priorities



- Strive to provide recreation facilities and programming that meets the needs and interests of residents by expanding recreation amenities to keep pace with community growth, while recognizing that residents’ desires will have to be balanced with space and resource limitations.
- Balance the demand for development with the desire to retain open space and less developed areas for recreational, cultural and community activities, and use City recreation and open space resources sustainably.

key points | existing conditions & trends

- The most recent recreation master plan provides a detailed description of Lebanon’s recreation resources, and recommendations for future amenities and improvements.
- Lebanon has a Recreation and Parks Department that coordinates City recreational programs and special events, and that maintains the City’s parks and recreation facilities.
- Within Lebanon, there are a variety of public recreation amenities including state lands, City recreation areas, and school district recreational facilities.



riverside community park

workforce. When planning for recreation, the tension between these two factors is further evident in discussions regarding whether additional land in the City should be developed as formal recreation areas (sports fields or courts, playgrounds, etc.) or be managed in a more natural state for informal recreation use (trails, wildlife viewing, canoe/kayak access, etc.).

It is also important for City parks and recreation areas to be used in a sustainable manner - one that does not result in degradation of the City’s recreational, cultural, historical and natural resources. Increased use without adequate oversight and maintenance, or misuse, could result in damage or loss of our valued resources. This issue needs to be confronted as the City grapples with continued growth.

10 | C **Existing Conditions & Trends**

10 | C-1 **Recreation Planning**

The most recent Recreation Facilities Master Plan and Addendum provides a detailed description of existing recreation resources within the City, as well as recommendations for future amenities and improvements. A brief summary of the City’s recreation resources is provided below, but readers seeking more detailed information should refer directly to the Recreation Master Plan. The subsequent sections of this chapter combine the recommendations from the Recreation Master Plan with input gathered from residents through surveys and planning forums in the years since the recreation plan was developed. The importance of recreation to City residents is evident. Two of the core concepts that residents have repeatedly communicated to City planners and officials are recreation-related: stewardship of natural and recreational areas; and improvement of bikeways, walkways, and public transit systems (recreational-commuter corridors).

10 | C-2 **Recreation Department and Programs**

The City of Lebanon has a Recreation and Parks Department that coordinates a variety of public recreation programs and special events year-round for City residents of all ages. The department is also responsible for the maintenance and development of the City’s open spaces, parks and recreation facilities.

The City also has a Recreation Commission composed of citizens and representatives from City government and the school district. The commission is involved in master planning, annual budgeting, capital improvement planning and grant applications.

10 | C-3 **Recreation Facilities and Parks**

The table below offers a short summary of existing public recreation amenities in Lebanon. In-depth assessments may be found in the 1998 Recreation Facilities Master Plan and Addendum. In addition to these public resources, the City of Lebanon has a wealth of private and non-profit facilities and organizations that offer a variety of recreation facilities, programs and activities for people of all ages.

	Location	Size	Description
State Recreation Areas			
True's Brook Car Top Boat Launch	Route 12A		Provides access to the Connecticut River. Needs improved signage, parking & access.
Northern Rail Trail			Off-road, multi-use trail with a crushed-stone surface that travels from Lebanon to Grafton on a former rail bed. Open to use by pedestrians, runners, bicyclists, horseback riders, skiers & snowmobilers.
Mascoma Lake Boat Launch	Route 4A		Provides access to the lake for both motorized and non-motorized watercraft. Heavily used.
City Recreation Areas			
Civic Memorial Field	Crawford Ave adjacent to Seminary Hill School	9 acres	Multiple sports fields and open land, along with a wooden play structure, picnic pavilion, two tennis courts, a basketball court, public rest room and maintenance facility.
Colburn Park	Park Street	2 acres	Historic green at the center of downtown Lebanon is used for evening concerts, festivals, gatherings, and the Farmer's Market.
East Wilder Boat Launch	East Wilder Road	3 acres	Public boat launch on the Connecticut River.
Eldridge Park	Spencer Street	3 acres	Playing fields with public rest rooms and maintenance building contiguous to the recreation facilities maintained by the Carter Community Building Association.
Fellows Hill	Route 4 (east)	5 acres	Picnic facilities with scenic views. Needs improved access to Mascoma River and Mill Road.
High Street Park	High Street	0.5 acres	Lawn, bench and fountain used as a resting spot by pedestrians.
Lebanon Veterans Memorial Pool	Pumping Station Road	22 acres	Olympic-size pool, a wading pool with spray features, diving well, bath house, playground and green space completely renovated in 2003. Rail-trail and Mascoma River access.
Logan Park	Water Street		Little League field parking lot, dugouts, fencing and concession stand/rest room facility.
Mill Road Trail	off Route 4		Road closed to vehicles and maintained as Class A Recreational Trail. Offers a scenic walk along the Mascoma River & a link to the Rail Trail.
Pat Walsh Field	Riverdale Extension		Recreation field, seasonal skating.
Riverside Community Park	Glen Road	8 acres	Park developed in 2003-04 with a pavilion, skateboard park, horseshoe pit area, picnic area, accessible playground and an ADA-accessible riverfront trail that extends to the Powerhouse Mall.



lebanon veterans memorial pool

key points | future challenges & opportunities

- Residents have expressed a desire for increased recreational facilities and programs.
- Lebanon needs improved public access to waterways, which must be accomplished while protecting environmental quality in sensitive shoreline areas.
- The City needs a more robust pedestrian/bicycle circulation system that can provide both recreational opportunities and serve as an alternative mode of transportation that is healthier for people and for the environment. Active recreation parks and fields should be located in close proximity to existing neighborhoods.
- The land owned by the City at the Westboro Rail Yard should be developed into centrally-located park that can serve as a community gathering place.



eldridge park

	Location	Size	Description
Storrs Hill Ski Area	Spring Street with frontage on Great Brook	20 acres	Ski area with lodge and 3 trails with a 300-foot vertical drop, served by a surface lift. Abuts Goodwin Park & its system of trails.
School Recreation Areas			
Lebanon High School and Hanover Street School	Hanover Street	36 acres	Multiple uses, including football and lacrosse fields with nighttime lighting, a playground, and a rubberized track.
Lebanon Junior High	Bank Street	7 acres	Playing fields
Mount Lebanon School	White Avenue		Includes, Kidsplace, a primary age playground, a nature trail and open space. The City's Camp Kaleidoscope uses this school as a home base for its 5-8 year old age group.
Sacred Heart School	Eldridge Street		Playground
School Street School	School Street		Playground
Lebanon Middle School	Moulton Avenue		Playing fields

10 | D **Future Challenges & Opportunities**

10 | D-1 Meeting Current Demand

As described above, City residents have consistently communicated a desire for increased recreation opportunities and public parks, including in their responses to the 2009 Master Plan survey. Each spring, the demand for sports fields, in particular, is evident as field time is scheduled for school sports, adult leagues and Little League. At times, some playing fields cannot be used because of poor drainage, grass surface or uneven playing surface. Through the eighth grade, every child who wants to play is allowed to do so resulting in an increase in demand for facilities. The City should evaluate, improve and increase the number of facilities for sports activities.

Other specific recreation programs that residents have expressed a desire for include:

- Expanded ADA and special programs such as after school programs that engage children through high school.
- Expanded cultural offerings and programming of Colburn Park like the summer concert series and multi-cultural festivals.

10 | D-2 Waterway Use and Access

Lakes and beaches offer opportunities in a natural setting for safe, supervised swimming, relaxation and picnicking, and are especially attractive for young families. In addition to the city-owned Lebrun Meadow, which includes marginal Mascoma Lake access, there is a state-owned boat launch. The City should work with the Town of Enfield regarding public beach access to the lake for Lebanon residents.

One issue raised at the 1999 “Lebanon: A Look Ahead” forum was residents’ desire for more walking access to both the Mascoma and Connecticut Rivers. The Northern Rail Trail and the Mill Road recreational trail have certainly improved access to Mascoma Lake and the upper portions of the river. However, access to the Mascoma River in the downtown central business district and downstream to the Connecticut River could be improved and capitalized upon.

Improved public access to waterways must be achieved with minimal environmental harm, as laid out in the Addendum to the Recreation Facilities Master Plan. Any projects adjacent to waterways must comply with the New Hampshire Shoreland Water Quality Protection Act (RSA 483-B) as well as the Connecticut River Corridor Management Plan.

10 | D-3 Pedestrian and Bicycle Amenities

Residents have consistently expressed a desire for roads that are safe for walking and biking throughout the City. For many older residents or parents with young children, walking through their neighborhood or in downtown Lebanon or West Lebanon is a daily/primary recreational activity.

A more walkable/bikable City is a more livable City. Walking and biking create more of a sense of community, as it promotes interaction between neighbors, and can also help reduce roadway congestion and associated air quality problems when replacing a trip by car. Roadway improvements to accommodate pedestrians and bicycles can also enhance safety for motorists. For example, adding paved shoulders on two-lane roads has been shown to reduce the frequency of run-off-road, head-on, and sideswipe motor vehicle crashes.

Walking and biking should be promoted within the City. Lebanon shall create safer walking and bicycle paths throughout the City and to other Upper Valley communities. Locating recreational parks and amenities within or in close proximity to existing neighborhoods is fundamental to supporting this concept.

10 | D-4 West Lebanon and Westboro Rail Yard Opportunities

Within West Lebanon, there is an identified need for a centrally located park or facility that would serve as a community-gathering place, a place where there could be both formal scheduled events as well as opportunities for informal gatherings and play. The Westboro Railroad Yard, which includes land leased to the City by the state, is centrally located and contains prime river frontage, could provide much-needed recreational space in West Lebanon.

Outcomes & Strategies

OUTCOME 1 Continue to meet the growing demand for varied recreational facilities and activities, parks, trails, and open spaces.

STRATEGIES

- 1 Promote programs that encourage physical fitness for children through highschool.
- 2 Continue to involve children in civicactivities.
- 3 Encourage teens to become involved in coaching, umpiring, and being “Big Brothers and Sisters” to younger children.
- 4 Continue and expand the summer day camp program’s leadership development program for junior high school age youth.
- 5 Continue to offer recreational and cultural activities where senior citizens can interact and collaborate with people of all ages.
- 6 Consider decommissioned school buildings and playgrounds for indoor and outdoor recreation.
- 7 Broaden support for the growth of structured after school programming that is coordinated and inclusive of youth at all ages and income levels.
- 8 Improve public access to Mascoma Lake, the Mascoma River, and the Connecticut River.
- 9 Support the “String of Pearls” project of the Lebanon Rotary Club.
- 10 Develop additional safe multi-use trails to offer connectivity throughout the City and to other Upper Valley towns.
- 11 Ensure that walking/bicycle routes have well maintained sidewalks, safe road crossings & benches.
- 12 Provide opportunities along walking and biking trails for picnicking and non-structured uses.
- 13 Improve communication between residents and the City regarding the addition of multi-use paths.
- 14 Address walkability and bikability in conjunction with traffic planning.

ACTIONS

- 1 Evaluate the need for facilities and continue to form partnerships with user groups (such as Lebanon Youth Baseball Association, Upper Valley Trails Association, Rotary Club, and Greater Lebanon Youth Hockey) to develop these facilities
- 2 Investigate and develop City-owned lots for use as pocket parks.
- 3 Incorporate the statistical information on citizen recreational uses from the 2001 and 2009 Survey of Lebanon Taxpayers’ Recreation Preferences and Views on Recreation Services and Facilities
- 4 Review the current availability of a boat launch at the Mascoma Lake and other sites for Lebanon residents.
- 5 Work with the Town of Enfield to allow Lebanon residents beach access.
- 6 Identify and establish off-road multi-use routes central to Lebanon and West Lebanon for residents’ use as in-town trails.
- 7 Update the Pedestrian & Bicyclist Advisory Committee Plan and Recreation Facilities Master Plan to connect City areas via multi-use trails.
- 8 Implement the “Livable, Walkable Lebanon Plan” and “The Blueprint for Community Trails.”

OUTCOME 2 Address the needs of all recreational users while protecting and maintaining conservation lands, and ensuring sustainable use of the City’s recreation resources.

STRATEGIES

- 1 Continue to provide recreational opportunities for all recreational users, including motorized recreational vehicle users, people with disabilities, and other users needing special accommodation.
- 2 Promote an educational program on the recreational opportunities available in Lebanon as well as improve the signage at the sites to make them more visible to the public.

ACTIONS

- 1 Review regulations regarding the proper use of recreational areas and conservation lands within the City.
- 2 Update the “Lebanon Trails & Recreation Map.”

11 | **Historic Resources**

11 | A **Vision & Purpose**

Lebanon's rich heritage will be made accessible to our citizens and young people through ongoing efforts to protect, research, study and communicate about the City's historic structures and documents. Both residents and visitors will be given a sense of the community's history, including the significance of those structures and documents, and the stories of the people involved in them.

The City of Lebanon will work to protect and preserve the distinctiveness of its historic and representative architecture, natural landscape and resources, homesteads of historic persons, historic structures, and properties of historic value. The City will also educate its residents and visitors about the City's many architectural and historic sites and resources to encourage the preservation of its history for generations to come. Finally, the City will preserve its historic legacy through careful planning and quality design by encouraging adaptive reuse of and respectful infill development around its historic buildings that are not used as museums and preserved historic sites.

11 | B **Issues & Priorities**

11 | B-1 **Provide Adequate Protection for Historic Resources**

As the City continues to grow and develop, there will be continued pressure for development or redevelopment that could result in the loss of historic structures or landscapes. Perhaps the most vulnerable to development pressure are the remaining historic farmsteads in the City's rural areas. Guiding development towards the already built-up parts of the City and away from rural lands can help preserve the remnants of Lebanon's historic agricultural landscapes. In the core developed areas, finding new uses for old buildings is one of the most effective ways to protect historic structures, such as barns in rural areas.

11 | B-2 **Fostering Community Awareness & Appreciation**

Historic buildings and heritage landscapes are critical components of Lebanon's community character and identity. In addition to the quality of life benefits, preserving historic resources can result in significant economic benefits for communities as historic sites draw tourists, historic restoration projects create jobs, and historic downtowns become thriving business districts. By creating more awareness of and appreciation for the historic resources in the City and the benefits associated with them, citizens will be more likely to support projects and programs aimed at protecting historic buildings and properties. Likewise, the private owners of historic buildings will be more likely to take pride in and properly maintain their property to preserve its historic character when they know more about its history and see that it is an asset that is valued by the community.

[key points](#) | [vision & purpose](#)

- Convey Lebanon's rich heritage to residents and visitors by preserving and interpreting the historic resources that can tell the stories of the City and prior generations of residents.
- Encourage adaptive reuse of and respectful infill development around the City's historic buildings.

[key points](#) | [issues & priorities](#)

- Protect Lebanon's historic resources as the City continues to grow and develop.
- Foster greater awareness of and appreciation for the benefits and opportunities created by Lebanon's historic resources.

key points | existing conditions & trends

- Lebanon’s landscape and natural features speak to the City’s heritage.
- Several inventories of historic resources have been conducted in Lebanon resulting in the listing of Colburn Park on the National Register of Historic Places.
- There are two organizations focused on historic resources in Lebanon: the Lebanon Historical Society (a private nonprofit organization) and the Lebanon Heritage Commission (an appointed civic committee).
- Downtown revitalization efforts in Lebanon have been strengthened by appropriate rehabilitation and re-use of historic buildings that have preserved their character and given the structures a new life.



colburn park



11 | C **Existing Conditions & Trends**

Lebanon has a long and rich history, which is reflected in numerous structures, natural areas, and roads. For example, the Colonial Kings Highway, ten rods wide, passed through Lebanon. With the 1761 signing of the Middle Connecticut River Grants that created Lebanon and other Upper Valley towns, the population began to grow. Farmers roofing their homes on Poverty Lane heard shots fired during the Revolutionary War. Civil War soldiers from Lebanon and the surrounding areas traveled through Westboro Station on their way to war; their relics are housed in the Soldiers Memorial Building. Since the 1760s, proud stoic families have been born, raised, and died here. Tombstones stand as silent sentries to them.

11 | C-1 **Historic Natural Features**

Before European settlement, the Squakheag Indians traveled the fishing waters of the Connecticut River and its tributaries, including the Mascoma River, which bears the name of the Squakheag Chief, Mascommah. From the time European settlers first came to the area, Lebanon’s rivers have been utilized to create development opportunities and they are a central part of Lebanon’s history. The Mascoma River made Lebanon a wealthy mill town for most of its first two centuries, and as recently as the 1950s. Several of these historic mills have been converted to present day uses, illustrating the benefits of adaptive re-use of historic structures. The dams still in the Mascoma River and its tributaries are also evidence of the City’s industrial heritage.

Lebanon’s agricultural heritage is still evident in the City’s present-day landscape. Although many of these agrarian sites are no longer working farms, they represent a link to the historic past. Historic barns, colonial farmsteads and stone walls are but a few of the historic rural resources remaining in the City today.

11 | C-2 **Historic Inventories and Districts**

The 1984 Historic Resources Survey, commissioned by the Upper Valley Lake Sunapee Regional Planning Commission, identified 530 historic structures within Lebanon. An additional survey for the West Lebanon village area was completed in 1997.

There are three listings on the National Register of Historic Places in Lebanon (the Colburn Park Historic District, the Spring Hill Farm, and the Stone Arch Underpass) and one listing on the New Hampshire State Register of Historic Places (the Dana House). Lebanon’s Landmark Designation program was created to identify and aid in the protection of sites and structures of significant architectural and historical value in the City. As of 2010, 73 buildings and structures have been designated as Historic Landmarks.

The City’s Colburn Park Historic Overlay District was established in 1996 and includes 19 contributing historic buildings and Colburn Park along the Hanover Street Mall. The district is comprised of a concentration of architecturally interesting structures in a variety of styles from the 19th and 20th centuries. Unifying the diversity of these buildings is their common siting fronting Colburn Park.

11 | C-3 **Historical Organizations**

The Lebanon Historical Society, a private, non-profit organization established in 1958, has been active in the collection of historical information pertaining to Lebanon’s past. The society worked closely with one of its

founding members, Robert Leavitt, who also served as the City Historian from the position's creation in 1973 until his death in 2007. The Historical Society has a wealth of historical information and documentation - photographs, clippings, artifacts and other materials - cataloged, recorded and stored in its vault at the Marion Carter Homestead. The Lebanon Historical Society has developed a web site that provides a wealth of information on the City's history. The site is online at www.lebanonnhhistory.org.

In 2006, the Lebanon Heritage Commission was created to supersede the City's Historic District Commission. The Heritage Commission is responsible for oversight of the Colburn Park Historic District, serves in an advisory role to the City, and provides stewardship for the Dana House in West Lebanon. The commission is also responsible for the dissemination of information regarding the City's historical resources and for conducting the landmark program. The designated City Historian is a regular member of the Heritage Commission.

For properties within the Colburn Park Historic District, the Heritage Commission assumed the powers granted by the Zoning Ordinance pertaining to the historic district. As set forth in RSA 674:44-a, the commission generally advocates for "the proper recognition, use, and protection of resources, tangible or intangible, primarily man-made, that are valued for their historic, cultural, aesthetic, or community significance within their natural, built, or cultural context."

11 | C-4 Downtown Revitalization

The rehabilitation and adaptive use of various local structures has been critical to the visibility and acceptance of historic preservation. The rehabilitation of older buildings can be less expensive than new construction, and can benefit the tax base while giving older structures new life. Increased delays in project review and competition for limited resources dedicated to historic preservation are some of the challenges associated with the rehabilitation of historic structures.

A well-executed renovation project can act as a catalyst for similar work in the area, enhancing the downtown's overall image. However, structures remodeled in a manner not compatible with the historical character of the downtown can visually degrade the entire area. Structures that have found new uses in Lebanon include:

The former Woolworth Building, now an innovatively restored Lebanon College.

- The former Hotel Rogers, now senior citizen housing
- The Rivermill Complex.
- The H.W. Carter and Sons Factory, which now houses the AVAGallery.

11 | D **Future Challenges & Opportunities**

11 | D-1 Protecting Historic Resources

Lebanon residents enjoy many aesthetic, cultural and economic benefits of the community's rich heritage by living in the midst of the reminders of the past. Parts of our nation's history that exist nowhere else in this country can be found in Lebanon. However, many of these reminders have been lost to change, growth and



[dana house](#)

key points | future challenges & opportunities

- Lebanon residents enjoy many aesthetic, cultural and economic benefits of the community’s rich heritage by living in the midst of the reminders of the past. These historic resources should be recognized, valued and protected so they are not lost as the City continues to grow and develop.
- The City’s historical organizations should continue their coordinated efforts to identify historic resources, interpret the City’s history, and seek funding for historic resource preservation projects.
- The City should continue to evaluate and consider creating other historic districts.
- The City should continue to identify historic structures and sites for national, state and/or local recognition, and should continue efforts to restore City-owned historic buildings.
- The City should continue efforts to preserve historic transportation resources including historic and scenic roads, and railroad corridors and infrastructure.
- The City should continue efforts to preserve open space and protect rural character, which would also preserve the City’s remaining heritage landscapes.
- The City should continue to support and sponsor opportunities that educate City residents, particularly youth, and visitors about the City’s history.
- The City should pursue partnerships, funding opportunities, and other mechanisms for protecting historic resources.
- Lebanon’s historic resources should be promoted for cultural and heritage tourism.



development. Additional historic sites and resources will be lost if action is not taken. These losses will result from acts of omission rather than commission. The danger is not just in the loss of an historic landmark, but also in the gradual and pervasive erosion of historical character that happens with incremental changes to buildings and neighborhoods

In the absence of diligent stewardship on the part of the City of Lebanon and its citizens, the links to our community’s treasured past will be lost forever. Future generations will never see, touch, walk through, enjoy, or cherish them; while some will be mentioned in books, the rest will be completely forgotten as the last of those who remember pass on. It is the City of Lebanon’s obligation, therefore, to protect and preserve these precious symbols of the community’s heritage, and to instill in its children a sense of pride and reverence that they will pass on for generations to come.

Successful preservation of the City’s past heritage will only be accomplished if information and knowledge is passed on and valued. The City needs to remind its citizens of the rich history that surrounds the community. A recent example of the worthiness of this concept has been the statewide requirement to teach local history in the schools.

An historic preservation program provides an historical context for future planning and land use policies, particularly as these policies relate to urban design. Using past architectural styles as a benchmark, historic preservation gives residents an important connection and “sense of place” that fosters pride and encourages community involvement.

11 | D-2 Historical Organizations

The Heritage Commission, as well as the numerous private organizations and citizens that have traditionally participated in promoting and preserving Lebanon’s historic resources, should continue in their roles and with actions such as the development of interpretive signs, walking tours, publications and events with an historical focus.

Through its Heritage Commission, the City should complete an updated comprehensive Historic Resources survey of the City’s historic buildings, and then periodically update that information. The members of both the Historical Society and Heritage Commission should meet periodically to keep each other informed of goals, accomplishments, and challenges, and to avoid duplication of effort. Furthermore, there may be opportunities for collaboration on certain projects of mutual interest.

The Lebanon Heritage Commission should pursue Certified Local Government (CLG) status, which would make the City eligible to apply for matching grants for community preservation activities, such as surveys, educational projects, and preservation planning, as well as training for commission members and technical assistance for completing its responsibilities.

11 | D-3 Historic Districts

The Heritage Commission is currently evaluating the possibility of creating new historic districts, including expanding the current district in Lebanon and creating a new one in West Lebanon’s Maple Street area. In order to prepare for this process, the commission should look at evaluating property for historic preservation. The

commission also should produce a public information document on historic districts to raise public awareness of their value. The creation and administration of a local historic district is the most comprehensive preservation tool available to local governments under state law.

11 | D-4 Historic Buildings

The City, with assistance from the Heritage Commission and the Historical Society, should continue to identify buildings that qualify for the State and/or National Registers of Historic Places and the City's Historic Landmark Designation Program.

The Dana House in West Lebanon currently is a primary preservation focus for the City. One of the Heritage Commission's hopes is to eventually develop a comprehensive list of the families who have lived in the house over its 250-year history. The commission is studying whether the Dana House will qualify for inclusion on the National Historical Register of Historic Places.

Another historic building that could be better utilized is the Soldiers' Memorial Building. The Soldiers' Memorial Building now serves as a memorial to veterans of all wars, and various veterans groups meet there. If the City wants to open this building more frequently for public visitation, ADA access and security issues may need to be addressed. Currently, the Soldiers' Memorial Building Advisory Board opens the building to the public only several days per year. The board is composed of volunteers and it is often difficult to find enough volunteers to open the building more often.

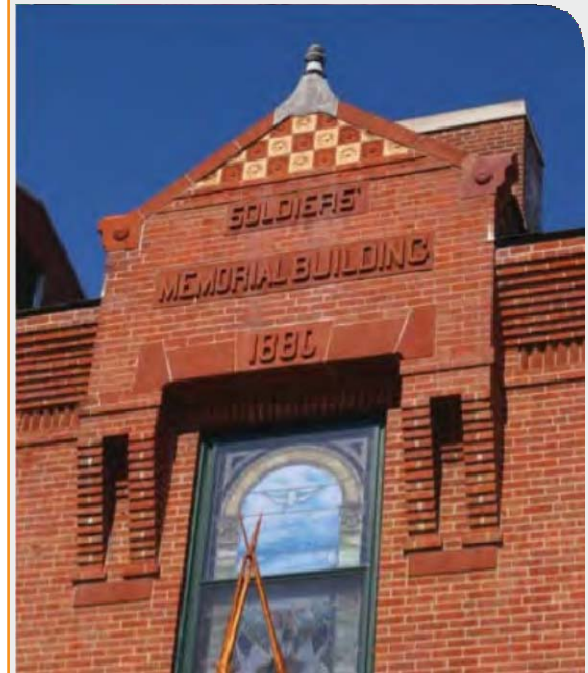
Lebanon has a wealth of old mill buildings, some of which have been renovated for reuse. The City could follow examples set by Manchester, New Hampshire and other mill towns in capitalizing on its mill history. Residents and visitors could learn more about the importance of that era through photo and interpretive displays, walks or lectures.

11 | D-5 Historic Transportation Infrastructure

The City has a number of historic and scenic roads that are in danger of being degraded because of a lack of recognition and protection. What remains of the original roads that passed through and connected Lebanon with the rest of New England should be preserved. The remaining portions of these old roads, whether currently in use or not, deserve recognition and a permanent place in the community, possibly as preserved trails for the recreational use. The Lebanon Class VI Roads Committee and the Scenic Road designation process are two mechanisms capable of providing stewardship to these resources.

The Westboro Rail Yard located off of Main Street in West Lebanon is considered one of the City's greatest assets. The preservation of the Westboro railroad lines and properties would be an important reminder of West Lebanon's heritage and the City should continue to work with the state, the Claremont-Concord Railroad, and the citizens and businesses of West Lebanon to develop a viable plan for the site (Chapter 4 of this plan for a more complete discussion of future planning ideas for the rail yard, including historic preservation and partnership opportunities).

An extension of the Rail-Trail from downtown Lebanon, along the Mascoma River, to West Lebanon could provide an alternative transportation link between a revitalized Westboro Yard and the remainder of the City.



soldiers' memorial building



mill parcel

For this concept to come to fruition, however, the trail would need to coexist safely with active rail use in part of the corridor.

11 | D-6 Historic Open Space and Natural Resources

The City's scenic and agricultural lands play an important role in providing a link with history and a rural character that is disappearing. The City should continue pursuing conservation and preservation easements with willing landowners, and with the assistance of regional land trusts. The State of New Hampshire provides several historic preservation tools for barns and other historic agricultural structures. The designation of the Connecticut River Byway as a National Scenic Byway in 2005 creates additional grant funding opportunities for preserving historic properties and valuable farmland. Improving access to the Mascoma River would not only help revitalize the Central Business District, but could enable it to be better used as a living historical and recreational resource.

11 | D-7 Historic Education

The success of preserving the City's heritage will only be accomplished if information and knowledge is passed on and promoted. The City needs to remind its citizens, particularly its youth, of the rich history that surrounds the community. Educational programs focused on local history and its preservation should be encouraged in both the community's schools and through City-sponsored recreational programs and public awareness activities. The City's historical organizations should work with the schools by providing historical resources and materials, involving long-time residents who can present information or be interviewed, and consulting with the schools on curriculum. This program need not be limited to a classroom, but can include education through participatory civic activities. The City can broaden public awareness of its historic resources in a variety of ways, including:

- Brochures describing local history, and including a map of notable structures.
- Walking tours of historic sites and structures.
- Oral history projects.
- Historic re-enactments on the Green and commemorative celebrations such as Lebanon 250.
- Photographs and murals in City Hall and other public and commercial buildings.
- Better utilization of historic buildings such as the Soldiers Memorial Building and Carter House for educational outreach purposes.
- Establishing an historical museum, preferably in one of the City's historic properties.

11 | D-8 Historical Tools, Programs and Partnerships

The Land and Community Heritage Investment Program (LCHIP), the New Hampshire Main Street Program, and Certified REHAB federal tax incentives, are examples of programs and tools that could benefit the City and private owners of historic buildings. Additionally, the City should make better use of local human resources when making decisions that impact Lebanon's historic assets. This could be accomplished through an inter-board review process for City projects affecting historical resources. As development occurs, the City needs to

weigh the importance of preserving our history out of respect for those who came before us and for the value it brings to us in our everyday lives.

11 | D-9 **Historical and Cultural Tourism**

Historic and cultural resources account for a significant portion of the tourism spending in the state. As the travel and tourism industry becomes a larger segment of the regional economy, opportunities to promote heritage and cultural tourism should be explored. As Lebanon is on the Connecticut River Byway, there are opportunities to promote its cultural heritage through the Connecticut River Byway Council. In addition to creating new jobs and new businesses, well-managed tourism improves the quality of life and builds community pride. Cultural heritage travelers are an attractive market to target, as they tend to stay longer and spend more money, according to the National Trust for Historic Preservation. Perhaps the primary benefit of cultural heritage tourism is the preservation of a community's historic character. However, the largest challenge facing heritage tourism is ensuring that its success does not destroy what attracts visitors in the first place.



west lebanon congregational church

OUTCOME 1 Protect Lebanon's historic resources as the City continues to grow and develop.

STRATEGIES	ACTIONS
1 Encourage local citizens to cooperate in preserving our cultural heritage by identifying and adequately protecting historic resources.	Conduct oral history projects with long-time residents who wish to share their knowledge and experience. 1
2 Seek grant money to develop and restore areas of historic interest.	Continue to pursue obtaining status as a Certified Local Government. 2
3 Work jointly with local individuals and organizations, as well as with those from other geographic areas, to provide a broader basis for funding for historic preservation projects.	Continue identifying structures that qualify for the State and/or National Historic Register and the Historic Landmark Designation Programs. 3
4 Explore and support financing options for adaptive reuse of historic buildings.	Continue preparing a complete historic resources survey for Lebanon, building on the 1984 partial survey carried out by the Upper Valley Lake Sunapee Regional Planning Commission. 4
5 Continue to consider the Land and Community Heritage Investment Program (LCHIP) and other sources of funding for critical historic preservation projects, if funding for this program continues.	Continue efforts to nominate the Dana House for the National Register of Historic Places. 5
6 Investigate the New Hampshire Main Street Program for assistance with Central Business District revitalization.	Evaluate historic features along the railroad corridor in Lebanon and East Lebanon for preservation. 6
7 Consider utilizing the Connecticut River Byway Program to help promote the City's heritage.	Continue seeking conservation and preservation easements of sites with historic value with willing landowners. 7
8 Continue evaluating the appropriateness of new historic districts, such as expanding the current District to include the neighborhood between School and Bank Streets, and a new district in the Maple Street and Main Street area of West Lebanon.	Work with the Conservation Commission to raise awareness among residents of the benefits of conservation easements. 8
9 Continue to investigate historic preservation grant and tax incentive programs to save or restore barns and other agricultural outbuildings, including the new state law that enables local government to grant tax relief to landowners wishing to maintain and repair their agricultural buildings.	Preserve and plant street trees in the Historic District and Central Business Districts of both Lebanon and West Lebanon. 9
10 Continue to support the Conservation Commission and Class VI Roads Advisory Committee in their efforts to map all historic Class VI roads and identify their historic and current uses.	
11 Continue to support efforts to designate scenic and/or historic roads and recognize them with plaques.	
12 Support the Westboro Committee in its efforts to develop a plan for Westboro Yard.	
13 Support efforts to extend the Northern Rail Trail/Mascoma River Greenway from downtown Lebanon to West Lebanon.	
14 Recognize the historic value of open space and natural resources.	

OUTCOME 2

Foster greater awareness of and appreciation for the benefits and opportunities created by Lebanon's historic resources.

STRATEGIES

- 1 Better utilize the Soldiers' Memorial Building, Carter House, and other historic buildings for educational outreach purposes, while ensuring their careful preservation.
- 2 Foster community appreciation and involvement through public education strategies, such as: brochures, walking tours, oral history projects, and displays/murals in public buildings.
- 3 Assist the City Historian in outreach efforts with schools.
- 4 Recognize the economic potential of historic resources.
- 5 Explore opportunities to promote heritage tourism, through historic walking tours, heritage festivals, and signage.
- 6 Consider developing interpretive educational materials and events focused on the City's mill history.
- 7 Continue to investigate and encourage ways to bring attention to our rivers and to use them as a source for history education.

ACTIONS

- 1 Develop a plan for ADA access for all City-owned historic buildings whenever feasible.
- 2 Develop educational and interpretive signs recognizing the Historic District and historic buildings.
- 3 Establish an historical museum, preferably in one of the City's historic properties, to be operated by the Heritage Commission, the Historical Society, or both.
- 4 Continue to write articles on community history for local newspapers.
- 5 Develop a joint effort with the schools to help educate students about the City's history and historic resources (buildings, rivers, documents, and people) and involve students in heritage projects.
- 6 Prepare a "white paper" and a publicity and property owner's packet on the benefits and value of historic districts, to raise public awareness of their importance.
- 7 Continue restoring the Dana House in West Lebanon and develop plans to convert it to a museum.

12 | **Community Design and Civic Art**

12 | A **Vision & Purpose**

Civic art and cultural resources have the unique ability to invigorate and energize a community as well as attract people from surrounding areas, making Lebanon a regional arts and festival destination site. The City of Lebanon is committed to supporting civic art and cultural resources that will catalyze the creative economy, create a positive sense of place, establish our City as a regional cultural center, improve the visual presentation of our City, draw the community into public spaces, and elevate community pride. Lebanon will seek opportunities to integrate artists and designers into public projects and activities.

12 | B **Issues & Priorities**

12 | B-1 **Civic Art Program**

A well thought out civic art program has the power to express the City’s image and support a positive sense of place. The City should find funding strategies to support a sustainable civic art program, choosing, evaluating, and promoting civic art that is designed to engage citizen appreciation and participation. The City should find funding strategies to support a sustainable civic art program run by an appointed Commission for Civic Arts. The commission would choose, evaluate, and promote civic art that is designed to engage citizen appreciation and participation.

12 | B-2 **Creative Economy**

Artists, crafts people, design professionals, cultural organizations, media companies and other businesses in the “creative” sector are a growing component of the Upper Valley economy. Lebanon has recognized that not only does a strong creative economy generate jobs and revenue directly, it also does so indirectly by enhancing the City’s quality of life and downtown vitality. As a regional center, Lebanon has the infrastructure and resources to be the hub of Upper Valley’s creative economy. The City will need to create a stronger understanding or awareness of the existing creative economy, including its benefits and the actions needed to support its continued health and future growth.

12 | C **Existing Conditions & Trends**

12 | C-1 **Creative Economy**

The creative economy includes non-profit organizations and for-profit business where creativity is essential to success and where the potential for wealth and job creation comes through the generation of ideas, products and/or services. The creative economy contributes to economic growth that increases the quality of life within communities. Throughout New England, communities are currently engaged with planning at the municipal

[key points](#) | [vision & purpose](#)

- Establish Lebanon as the arts and cultural center of the Upper Valley.
- Enhance the City’s character and quality of life through civic art and activities.
- Continue to expand Lebanon’s creative economy.

[key points](#) | [issues & priorities](#)

- Support a sustainable civic art program to promote arts and cultural opportunities that enhance the City’s character and quality of life.
- Establish Lebanon as the hub of the Upper Valley’s creative economy by attracting new creative businesses, institutions and entrepreneurs to locate in the City and by supporting the City’s existing creative sector.

key points | existing conditions & trends

- The “creative” sector is an expanding component of the City’s and region’s economy, which is contributing to economic growth and increasing quality of life.
- Lebanon has a wealth of cultural and civic art resources and partners, which encourages further growth of the creative economy, attracts new residents and visitors to the City, and creates interesting public spaces and events.
- Civic art has multiple benefits for municipalities including enlivening streets, improving the appearance of public infrastructure and spaces, and generating civic pride and engagement.



level to support the creative economy. In Lebanon, the Upper Valley Community Foundation brought the Creative Economy Summit to the Upper Valley region in spring of 2004, initiating this endeavor locally.

Creative Clusters. Studies show that creative businesses tend to locate in clusters in communities that have concentrations of creative people, access to urban markets and offer a high quality of life - all features of Lebanon and the Upper Valley. Creative communities understand and value their cultural assets; they support diversity and innovation. Creative communities are a powerful draw to tourists, but also contribute to the economic stability of the region.

Lebanon has a creative community that continues to progress, grow and shape the City. We have creative clusters that include nonprofit institutions, commercial businesses, and individual artists that produce goods and services. Lebanon’s creative clusters attract workers with higher education and specialized skills. The presence of these businesses and organizations elevates Lebanon’s quality of life by providing diversity, cultural amenities and activities, and economic prosperity. Lebanon’s creative clusters contribute to an environment that supports innovation, attracts highly desirable knowledge-based employees, and encourages new forms of knowledge intensive production to flourish in the City.

Creative Workforce. The creative workforce is composed of individuals working in the creative sector, whether employed by a business, non-profit or self-employed. Lebanon’s creative workforce includes individuals whose jobs require a high level of skill in cultural, fine or applied arts, new technology, and enterprise. They teach, create, generate technical innovation, drive design, and cultivate change.

The creative workforce is usually attracted to areas with civic art programs due to the direct relationship with quality of life. Creative workers have been attracted to Lebanon for our high end jobs, the natural beauty of the environment, access to outdoor recreation, a richly historic downtown, and the region’s cultural opportunities. The creative workforce is growing in Lebanon and will continue to develop with the City’s cultural growth and expansion of the creative sector.

12 | C-2 Cultural and Civic Art Resources and Partners

Lebanon has a wealth of cultural and artistic resources as identified below. As the creative community in the Upper Valley has grown, the quality and quantity of the cultural and artistic resources accessible to City residents have also increased. With a greater presence of creative workers and organizations in the City, Lebanon has recognized that innovative community art is a powerful way to expand the public’s understanding of participatory art, youth empowerment, and community activism. Collaborative community art projects can engage people in civic life, join history with place, and transform public spaces.

The entire creative cluster in and around Lebanon has a vested interest in civic art because the increased quality of life will attract a desirable creative workforce to the region. The Upper Valley region is tightly interconnected. Residents all travel to neighboring towns to utilize the unique services available. Lebanon is a popular destination because it offers numerous commercial and public services, accessible from throughout the Upper Valley.

Lebanon's cultural and civic art resources include:

- **Lebanon Opera House, North Park Street.** The Lebanon Opera House connects the general public with diverse artists from around the world. An estimated 30,000 people annually attend or participate in events at the Lebanon Opera House, an historic 800-seat facility in the heart of downtown Lebanon. The Lebanon City Hall and Opera House building was designed by architect Jens Larsen, c. 1923-1924, and has a ceiling mural in the stairwell by Gary Hamel and a painting in foyer by Larry Howard. The Opera House hosts presentation series, community arts organization productions, educational workshops and student works. In addition to producing its own programming, the Lebanon Opera House Corporation coordinates and aids in the presentation of numerous productions staged by a variety of community arts organizations. Two of the most active, North Country Community Theater and Opera North, draw more than 8,000 patrons annually.
- **Soldiers Memorial Building, North Park Street.** The Civil War Soldiers Memorial building is the only one of its kind in this state. This asset has great potential for cultural tourism and educational value. The building is infrequently open to the public, so there is much community curiosity about it. Various veterans' groups are slowly turning it into a Civil War museum, although it does not meet ADA standards at the present time. The building, which contains stained glass windows and sculpture, was designed by Captain Ferdinand Davis c. 1886-1890.
- **Dana House, Route 4 West, Seminary Hill.** The oldest house in Lebanon is currently being preserved for eventual restoration under the direction of a committee of volunteers. This building has the potential to become part of a historic "belt" if restoration of buildings between Main Street, West Lebanon, and the Connecticut River ever becomes a reality.
- **Packard Hill Covered Bridge, Hardy Hill.** This historic bridge is now an attractive focal point for the east side of the City, and preserves the history of the Hardy Hill area. Its location adjacent to Baker's Crossing Conservation Area, provides an important link between the past and present.
- **City of Lebanon Recreation and Parks Department.** The City of Lebanon Recreation and Parks Department offers affordable art and drama courses and summer camps to area youth, and produces a music series in the summer. The department employs a seasonal Arts and Crafts Coordinator, who programs arts and crafts activities around the City for residents of all ages. The coordinator also runs the art program for Camp K and the arts and crafts program during the school year.
- **Lebanon Farmers Market, Colburn Park.** The Lebanon Farmers Market has both music and arts every Thursday from June to October.
- **City Artifacts.** Lebanon's historic artifacts are locked in an underground vault adjacent to the basement of the Carter House. However, the Heritage Commission and Historical Society are interested in acquiring an ADA-accessible historic house to be a museum that would display City artifacts.
- **City of Fountains.** Lebanon was once known as the City of Fountains. Many of the artful fountains once located around the City have been displaced in the past 30 years. The Marion Carter Fountain Committee has been working to revive and create new fountains in Lebanon. They have replaced the Colburn Park fountain (The Henry Wood Carter Memorial Fountain/"Umbrella Girl" Fountain on the east end of North Park Street) and have installed a waterfall on High Street. Fountains are an important part of Lebanon's history and identity.
- **Art Walk.** AVA Gallery and Art Center created the Art Walk pamphlet in Lebanon that leads the reader to the buildings around Colburn Park that have art installations and artful architectural elements.
- **Lebanon Mural Project.** The Lebanon Mural Project involves local youth and has completed a mural in the Lebanon Public Library Young Adult Room and a mural for Lebanon's Riverside Community Park.
- **Lebanon Public Library, East Park Street.** The Lebanon Public Library has three notable historic paintings that offer significant glimpses into early 19th century Lebanon as well as a contemporary mural designed by the youth of Lebanon and Saskia and Natasha Haugen.
- **Kilton Public Library, Main Street, West Lebanon.** The Kilton Public Library includes an interior garden with a fountain.
- **Lebanon Post Office, East Park Street.** Lebanon Post Office has "Rural New Hampshire," a 1939 Historical Mural by Charles Kaeseleau.
- **Lebanon High School, Hanover Street.** The High School has many murals.
- **Lebanon Community College, Hanover Street.** Lebanon Community College's art studios have large windows that face the mall. They offer fine art courses, photography, theatre, dance, and music.
- **First Congregational Church of Lebanon, South Park Street.** The First Congregational Church of Lebanon designed by Ammi Burnham Young, 1828, has impressive architecture, stained glass windows, and murals in the dining room.
- **Lebanon United Methodist Church, School Street.** The Lebanon United Methodist Church designed by Banwell White Arnold Hemberger & Partners, 1994, contains impressive stained glass windows and woodwork.
- **AVA Gallery and Art Center.** The AVA Gallery and Art Center has 250 artist members, 650 community members, three teaching studios, three galleries, 18 rental studios and an outdoor sculpture garden. There are classes for all ages and abilities, a scholarship program, internship program, special events exhibitions, summer art camps for children, and vacation art camps for young people. AVA has 27 art exhibitions a year and has been located in Lebanon since 1990.
- **Power House Arcade, West Lebanon.** The Power House Arcade has a large hanging copper sculpture called "Circus Parade" by Dennis and Sansea Sparling, assisted by Dick Wissler and commissioned by Bayne Stevenson. It was installed May 8, 1986 and is one of the more impressive pieces in Lebanon.
- **Dartmouth Hitchcock Medical Center.** Dartmouth Hitchcock Medical Center has an extensive collection of paintings, murals, sculptures, multimedia, and community art on permanent display, as well as rotating exhibitions. DHMC has the largest collection of public art in Lebanon. Sol Levenson has painted historically themed murals at DHMC.
- **Alice Peck Day Memorial Hospital, Mascoma Street.** The hospital has a large art collection.
- **Three Tomatoes Trattoria, Court Street.** Three Tomatoes Trattoria contains a Mural Italian Suite one and two, 1991-1992 by Clifford West, Bird Mobile, 1991 by William Peabody, Where Tradition Lives, 1994 by Geofrey Sass, Rain Drops, by Kirsten Nichols, and forged metal and glass shelves by Roger Chudzik.
- **One Court Street.** One Court Street was designed by architect Paul Mirski, 1989.
- **Lebanon Trade Center, West Lebanon.** The Lebanon Trade Center has a large outdoor sculpture.
- **Witherell Center & Carter Community Building.** CCBA has a large aquatic mural in the pool room.

There are many entities that have vested interest in the benefits of cultural and civic art resources in Lebanon, including artists, museums, schools, and historians. The increase of cultural tourism will bring prosperity to all the cultural organizations in the region.

Lebanon’s cultural and civic art partners include:

- Lebanon Historical Society and Heritage Commission
- Lebanon Garden Club
- Lebanon Bicycle and Pedestrian Committee
- Lebanon Arts and Crafts Association
- Northern Lights Quilting Guild in Lebanon
- Lebanon Rotary Club
- Lebanon Riverside Rotary Club
- Lebanon Chamber of Commerce
- Lebanon Youth in Action
- Full Moon Community Association in Lebanon
- Public schools in Lebanon and surrounding communities
- Lebanon College
- Franklin Pierce University in West Lebanon
- Dartmouth College in Hanover
- Lebanon City Center Ballet
- Upper Valley Music Center in Lebanon
- Co-op and River Valley Club Art Galleries at Centerra Park
- Duke’s Art and Frame Shop in Lebanon
- Lebanon Art Suppliers and Hobby Store
- L.L. Bean (has gifted \$20,000 to create 19 kiosks for Lebanon trailheads and community art can be incorporated)
- Upper Valley Arts Alliance
- Upper Valley Scene website (www.uvscene.com)
- Vital Communities in White River Junction, Vermont
- Connecticut River Byways Council
- Upper Valley Region - New Hampshire Charitable Foundation
- State of New Hampshire Council on The Arts
- State of New Hampshire Humanities Council
- League of New Hampshire Craftsmen
- Pentangle Arts Council in Woodstock, Vermont
- St. Gaudens National Historic Site in Cornish
- American Precision Museum in Windsor, Vermont
- Enfield Shaker Museum
- Shrine of Our Lady of La Salette in Enfield
- Maxfield Parrish Museum in Windsor, Vermont
- Hopkins Center at Dartmouth College in Hanover
- Hood Museum at Dartmouth College in Hanover
- Center for Cartoon Studies in White River Junction, Vermont
- Two Rivers Printmaking Studios in White River Junction, Vermont
- Tip-Top Studios in White River Junction, Vermont
- Cooler Gallery in White River Junction, Vermont



12 | C-3 Benefits of Civic Art and Events

Well placed, unique public art is a great way to highlight the meaning of a place. Lebanon’s central fountain, for example, invites passersby to enjoy a moment of leisure and relaxation, and underscores the meaning and intention of green space. In instances where few citizens ever see visual art, placing civic art in a City’s outdoors creates an art museum without walls. Cities that want to enliven the streets in a benign way should look to civic art. Civic art can also be incorporated into the design of main transportation corridors and gateways, providing visitors and citizens with a unique local visual experience. Civic art can enhance the appearance of public infrastructure and integrate utilities into their surroundings. Cities have found that by creating unique and engaging transit station designs they can increase ridership and contribute to the sense of civic well being, for example.

Similarly, well planned and coordinated civic festivals and activities are a great way to add diversity to the year and provide opportunities to support local artists, performers, businesses and organizations. Such events also provide an opportunity to showcase and market the local creative economy.

Civic art is an effective means to reinforce community and neighborhood identity. Civic art programs often focus on commissioning art which reflects a sense of place and unique community character. Community residents can play a role in envisioning, creating, and maintaining the art work. Such involvement can create a strong sense of place and community pride.

Civic art may be used to preserve and tell a narrative of people and their past. It can also teach people about broader social issues. Art and entertainment has the ability to interpret the multi-layered history in urban spaces.

Civic art programs play a significant role in the development of local artists. Community art opportunities can elevate the youth and college level participation in the creation of art in civic spaces. Professional artists have played the role of creating a meaningful consultation with the community to discover its values and aspirations in order to design art and entertainment to reflect and strengthen the community ideals. This work stretches the capacity of artists, develops cultural icons, and represents community expression.

12 | D **Future Challenges & Opportunities**

12 | D-1 Promoting Arts and Cultural Activities

Similar to a general theme expressed in chapters throughout this Master Plan, there is a need for coordinated planning and engagement to capitalize or enhance the opportunities associated with the local creative economy. The potential for supporting and promoting arts and cultural activities in Lebanon is great.

The City should investigate the best methods for linking important cultural facilities, such as the Lebanon Opera House and the AVA Gallery. This could take the form of a centrally located arts information kiosk or a brochure/map highlighting the various arts/cultural/historic resources in the City. Development of walking tours highlighting these resources would also help accomplish this goal. These activities would all help bolster this increasingly important segment of the downtown economy.

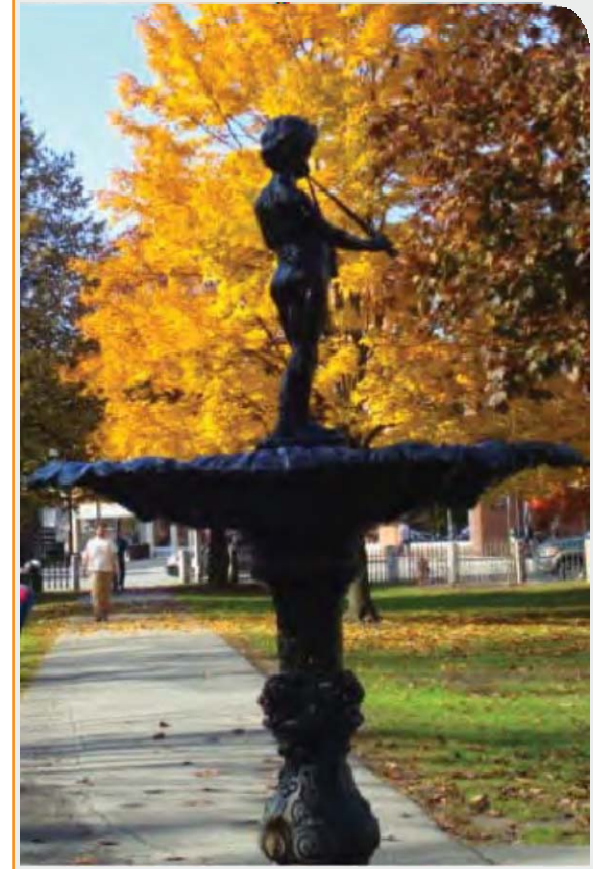
The City should also provide programs that highlight Lebanon's historic resources. Currently, Lebanon is not considered a primary destination for cultural tourism. However, Lebanon's potential as a cultural landmark is strong. There are many public sites which have potential for cultural development. They include the Lebanon mall, Main Street in West Lebanon, the String of Pearls (a series of planned recreation and conservation parcels along the Connecticut and Mascoma Rivers), and Lebanon trail kiosks (display for community art).

The land sites behind plazas could be prime locations for parks and civic art because they complement Lebanon's commercial districts. This strategic development would balance Lebanon's commercial environment with public parks and art by the rivers. There is potential for civic art in the land parcel behind the K-Mart Plaza, highway medians and right of ways, interstate exits, the gateways into Lebanon, and in public buildings.



key points | future challenges & opportunities

- Lebanon needs a coordinated effort and plan to promote civic art and activities, and expand the creative economy.



colburn park fountain

OUTCOME 1 Support a sustainable civic art program to promote arts and cultural opportunities that enhance the City's character and quality of life.

STRATEGIES	ACTIONS
1 Increase public awareness of the variety of arts and cultural activities and resources that exist in the City.	1 Establish "historic" walking tours of Lebanon with different themes, such as significant architecture, life in a mill town, bridges, notable people, notable artworks, etc.
2 Develop established processes for identifying civic art opportunities, evaluating, acquiring, and preserving civic art, and facilitating community arts projects.	2 Create a walking tour pamphlet of Lebanon's civic art and distribute at City Hall, Chamber of Commerce, and other appropriate venues.
3 Explore various funding mechanisms for civic art and activities.	3 Create a centrally located kiosk to distribute information about community arts and cultural events and resources.
4 Improve dialogue and awareness of the benefits of civic art and activities.	4 Promote arts/cultural events and resources on the City's website, in the City newsletter and on CATV.
5 Promote the benefits of civic art, which include: civic art is a catalyst for developing a sustainable creative economy, civic art creates a sense of place, and civic art engages people in civic life.	5 Establish a Civic Art and Festival Program that would be overseen by a Civic Art Commission appointed by the City Council.
6 Collaborate with art leaders from other cities for program speakers and presenters on the role of art in community.	6 Connect Lebanon's civic art to the Vital Communities Valley Quest Program.
7 Utilize the available opportunities in traveling historical shows, art shows, speakers, and presenters from NH State Council on the Arts and the Council on Humanities.	7 Provide funding to support the fountain committee's efforts to re-establish Lebanon as "The City of Fountains."
8 Create a stronger sense of place in Lebanon by reviving Lebanon's historical image and establishing its cultural image with a Civic Art and Festival Program that markets Lebanon as a historical and cultural destination.	8 Provide funding for civic art in the City's gateways and gardens.
9 Take advantage of opportunities to beautify public spaces.	9 Improve the Pedestrian Mall and bring back the turtle, dolphin, new sculptures and shade-loving perennial gardens.
10 Make improvements to the City's gateways with sculpture, gardens, and landscaping.	10 Commission a new historical mural for City Hall.
11 Encourage business to sponsor public gardens areas and activities.	11 Install sculptures at Storrs Hill that reflect Lebanon's place in the history of skiing.
12 Seek opportunities to work with students from the vocational/technical school to make improvements to the City's gateways and gardens.	12 Create rotating opportunities for the display of Lebanon student artwork.
13 Work with the state to allow planting of trees, shrubs, and hardy perennials and annuals wildflowers at interstate exits and all available medians.	13 Establish a venue for collaboration among arts organizations such as monthly gatherings to encourage collaboration on special events or arts programs.
14 Revitalize Main Street in West Lebanon with community art, public art and cultural activities.	14 Create an arts organization collaborative website that includes a place for dialogue among visitors and users.
15 Create a public sculpture garden park.	15 Open the Soldiers' Memorial Building as an ADA-accessible museum.
16 Encourage corporate and institutional advocacy for civic art and activities in Lebanon.	
17 Encourage the creation of civic art during the planning of large-scale developments by adopting a process that engages developers and institutions in the creation of civic art and encourages the emergence of corporate and institutional leadership in advocating for civic art.	

OUTCOME 1

Support a sustainable civic art program to promote arts and cultural opportunities that enhance the City's character and quality of life.

STRATEGIES

- 18 Research and stay current with other City initiatives to promote corporate advocacy for civic art and cultural activities.
- 19 Identify and adopt successful strategies that other communities have used to engage corporate leadership in civic art projects.
- 20 Encourage incentives and challenge Lebanon's businesses to contribute to a series of sculptures that relate to Lebanon.
- 21 Identify and catalogue available public spaces for community arts and activities, and identify the organizations that may help facilitate community arts projects.
- 22 Support the Historical Society and the Heritage Commission in the effort to acquire and establish an ADA-accessible historical house to be a museum that will house City artifacts.

OUTCOME 2

Establish Lebanon as the hub of the Upper Valley's creative economy by attracting new creative businesses, institutions and entrepreneurs to locate in the City and by supporting the City's existing creative sector.

STRATEGIES

- 1 Foster an Arts District in Lebanon.
- 2 Identify potential facilities, public and private, that would be appropriate for a commercial gallery or studio space, such as the old West Lebanon Library, the School Street School, or Sacred Heart School.
- 3 Identify galleries and studios as having a distinct use beyond retail and allow them to be in the residential office district.

Energy

Executive Summary

The City of Lebanon spends about \$1 million of taxpayer money on energy per year. This Energy Plan explains how the City is well positioned to save money by reducing energy use, support the local economy by diversifying energy sources, and improve the quality of life for its residents and surrounding communities.

Vision & Purpose

The long term vision for Lebanon's energy future is to increase energy savings for residents, businesses, and municipal functions, to ensure a robust and stable energy economy, and to reduce the impacts of greenhouse gas emissions that result from a fossil fuel-dependent economy. The purpose of the Energy Plan is to develop near-term outcomes, strategies, and actions that lay a strong foundation for Lebanon's energy future, for the fiscal and environmental benefit and security of the City and its taxpayers. The Energy Plan and planning process aim to:

- Prioritize specific recommendations focused on increasing municipal energy efficiency to save taxpayer money and reduce municipal energy demand, and recommend policies that promote energy efficiency over the long term in the municipal, commercial, and residential sectors.
- Provide a strategic direction for the Lebanon Energy Advisory Committee and build the committee's capacity to advocate and implement initiatives in the public interest.
- Involve citizens in shaping Lebanon's energy future.

Visions for energy savings:

- The City of Lebanon shall be a regional leader in energy efficiency, innovation, and fiscal responsibility.
- The City shall improve the energy efficiency of municipal buildings, municipal vehicles, and streetlights, and it shall promote similar efficiency measures for the commercial and residential sectors in order to significantly reduce the City's overall energy use.
- The City shall explore renewable energy options for purchase and development such as hydro, wind, solar, geothermal, biomass, and methane, within the City's control, to reduce reliance on non-local and foreign sources of energy, and promote similar projects in the commercial sector.
- The City shall address energy-related employee behaviors, such as commuting, turning off lights, waste management, etc., through social marketing and incentives.
- The City and the Lebanon Energy Advisory Committee shall involve the greater Lebanon community in a social marketing campaign that engages citizens in reducing their energy use. Educational techniques could include the following: holding topical community forums; developing visual, easily understood illustrations of the City's energy use; and giving more attention to current and recently completed municipal and commercial energy related projects.



key points | vision & purpose

- Increase energy and cost savings for the City, residents, businesses, and institutions.
- Build a robust and stable local energy economy.
- Improve energy efficiency of municipal buildings, the municipal fleet, and outdoor lights.
- Explore several promising renewable energy options in the City.
- Increase community security by becoming more reliant on local energy sources.
- Partner with businesses, institutions, and residents to significantly reduce Lebanon's overall energy use, improve efficiency, and explore alternative energy options.
- Comply with the goals of the statewide New Hampshire Climate Action Plan

- The City shall comply with the New Hampshire Climate Action Plan, which aims to reduce greenhouse gas emissions 80% below 1990 levels by 2050.

This Energy Plan seeks in part to fulfill these visions by recommending direct actions the City can take to reduce energy use, save money, and improve public and environmental health.

13|C **Background & Process**

The energy planning process closely follows the Lebanon City Council’s Principles for a Sustainable Community (2009). Most relevant to this Energy Plan are three of the seven guiding principles:

- **Environmental Responsibility and Energy Efficiency.** This is categorized as care for environment, improve energy efficiency of city and reduce carbon footprint, engage community in conservation and sustainable practices.
- **Intelligent, Coordinated Development and Transportation.** This can control urban sprawl, develop walkable neighborhoods with access to businesses and homes, create balanced/multi-modal transportation systems.
- **Fiscal Responsibility.** This can strengthen tax base and enhance property values, reduce taxpayer burden, diversify revenue, meet current needs and long-term goals.

13|C-1 **Local, Regional and Statewide Context**

Energy efficiency and renewable investment in Lebanon will help the state of New Hampshire reach its ambitious energy savings goals. Therefore, the goals and strategies of this energy plan are aligned with those of the New Hampshire Climate Action Plan (NH CAP). The NH CAP has chosen a mid-term goal of reducing greenhouse gas emissions 20% below 1990 levels by 2025. Overarching strategies of the Climate Action Plan that are most relevant to Lebanon are to:

- Maximize energy efficiency in buildings
- Increase renewable and low-carbon sources of energy in a long term manner
- Encourage appropriate land use patterns that reduce vehicle miles travelled
- Protect natural resources
- Lead by example in government operations
- Stay connected to larger efforts

Opportunities to stay connected at a state level include two annual conferences: the Local Energy Solutions conference in New Hampshire held each spring and the Vermont Energy and Climate Action Network conference held each winter. At the regional level, several organizations work to strengthen the Upper Valley’s energy independence, such as Sustainable Energy Resource Group (SERG), COVER Home Repair, and Vital Communities. Every May, SERG, Vital Communities, the Upper Valley Lake Sunapee & Southern Windsor

County Regional Planning Commissions, and the Two Rivers Ottawaquechee Regional Commission organize a roundtable event for local energy committees.

13 | C-2 Lebanon Energy Advisory Committee

At the local level, the Lebanon Energy Advisory Committee (LEAC) was formed in 2007 by the City Council with the following charge: to identify opportunities and make recommendations to the City Council with regard to reducing energy use, increasing energy efficiency, exploring alternative energy usage and reducing pollution, to the environmental and fiscal benefit of the City. The charge was modified in 2009 to include energy conservation measures for City residents and businesses, thereby cutting greenhouse gas emissions and reducing energy costs for taxpayers.

13 | C-3 Public Input & Community Support

The issues and priorities for the Lebanon Energy Plan were established through a number of channels: a public forum on energy in Lebanon, a public survey about Lebanon's most pressing energy issues, and six months of bi-weekly Lebanon Energy Advisory Committee public meetings, in which attendees discussed the information from the forum and survey. The priorities established in the updated Lebanon Master Plan (2012) and Lebanon City Council's Principles for a Sustainable Community (2009) also helped the Lebanon Energy Advisory Committee and consultants establish the issues in this Energy Plan.

Fiscal responsibility and regional leadership are two key themes addressed throughout the Energy Plan. Data from the survey and comments from the community forum indicate that nearly 75% of the survey respondents believe that energy efficiency improvements should save money. At the public forum, citizens and City staff agreed that the City of Lebanon should lead by example and be the leader in the Upper Valley for energy savings for residents and businesses.

Nearly 50 people attended the public forum in November 2011 and provided hundreds of oral comments and 37 written comments. The public and City staff completed a survey that provided additional written comments, prioritized actions, and generated ideas of other issues to address in the energy plan. The intended outcomes for the community forum and survey project were to involve the public in the energy planning process, articulate broad visions for Lebanon's energy future, give more publicity to Lebanon's existing energy projects, and solicit specific strategies to achieve the broader visions. The public ranked the following energy topics as the most important to address in the Energy Plan:

- Energy efficiency of municipal buildings & operations
- Renewable energy potential
- Transportation- fuel & commuting
- Commercial sector energy efficiency
- Policies promoting energy efficiency and investment

Full survey results and public comments are included in the Implementation Plan.



[key points](#) | [background & process](#)

- Public input established priorities for the City's energy future and include improving energy efficiency of municipal buildings, exploring renewable energy options in the City's control, addressing transportation costs, working with the commercial/institutional sector to save energy, and exploring policies that promote investment in energy efficiency

13|D **Issues & Priorities**

13|D-1 **Energy Efficiency**

Improving the energy efficiency of municipal buildings and operations is a great opportunity to save energy and money, as efficiency projects are often less capital intensive and more cost effective than renewable energy projects and usually have a shorter return on investment. Investing in municipal building energy efficiency improves the comfort and function of municipal buildings and public spaces, contributes to a positive environmental legacy, and reduces operating expenses immediately. Transportation – including municipal vehicle fleet and employee commuting - is the second most energy intensive sector in Lebanon, and opportunities for employees and the Department of Public Works to save energy, fuel, and money are abundant.

13|D-2 **Renewable Energy**

The price of fossil fuels will continue to fluctuate and destabilize budgets while perpetuating the City's reliance on non-local, non-renewable sources of energy. To stabilize the price and supply of energy and reduce the environmental impacts of fossil fuels, the City of Lebanon should actively pursue opportunities to develop renewable energy sources such as hydropower, wind, solar, biomass, geothermal, and methane regeneration. The City could also purchase renewable energy from utility providers, essentially investing in the development of new, more local renewable energy projects throughout the New England ISO region.

The state of New Hampshire has no natural sources of fossil fuels. Lebanon, similar to the rest of the state, is largely reliant on nuclear (44%), natural gas (27%), coal (14%), and conventional hydroelectricity (8%) to meet its electricity demands. Nuclear and conventional hydro electricity are sourced in New Hampshire at the Seabrook Nuclear Power Plant and dams on the Connecticut and Merrimack Rivers. However, natural gas and coal are purchased by utilities from Canada and other US states. Locally, the Wilder Dam on the Connecticut River produces 41MW of electricity in Lebanon. Until the 1950s and, in the case of West Lebanon up until 1969, nearly all local power needs were met through smaller hydropower turbines along the Mascoma River.

By investing in local renewable energy production, the City of Lebanon will reduce its reliance on foreign fuel sources, improve air quality for residents, stabilize the price and supply of energy for its many robust businesses, and reflect strong regional leadership. Additionally, investment in local power generating projects fulfills citizens' desires to maintain small town character and quality of life by gradually returning to the small scale, sustainable power sources that propelled economic development and commercial prosperity in Lebanon since its founding.

13|E **Existing Conditions & Trends**

13|E-1 **Energy Projects & Commitments**

The City of Lebanon is already committed to energy efficiency and renewable energy exploration. One can see this commitment in a number of well-established initiatives, such as the Lebanon Energy Advisory Committee, Lebanon's Principles for a Sustainable Community (adopted by the City Council and endorsed by the City

Manager), and the array of energy and cost saving projects supported and implemented by both the Lebanon Energy Advisory Committee and the Department of Public Works. However, a vision for long term success and greater coordination will be beneficial to existing efforts. Current and past projects are detailed below:

- Mayor’s Climate Action Agreement: in 2009, then-Mayor Karen Liot Hill signed this agreement, which encourages the City to strive to meet or beat the Kyoto Protocol by achieving a 7% emissions reduction from 1990 levels by 2012.
- New Hampshire Municipal Energy Assistance Program (MEAP): the MEAP project partners, Vital Communities, SERG, and Clean Air- Cool Planet, produced a detailed inventory and report of all energy use, costs, and greenhouse gas emissions of municipal buildings, streetlights, and vehicles for 2009. The program supplied an energy audit of the Lebanon Library by SDES consulting group.
- Streetlight Map: the LEAC and City Staff are diligently mapping all streetlights in Lebanon in order to make informed recommendations for which lights to remove and which to upgrade to LED or other energy efficient models.
- Energy Technical Assistance and Planning Program (ETAP): the City of Lebanon signed up for the American Recovery and Reinvestment Act (ARRA)-funded ETAP program in the summer of 2011. A building engineer conducted walk-through energy assessments of the 11 most energy-intensive municipal buildings in September 2011. Specific actions to improve the energy efficiency of municipal buildings can be found in [Appendix B](#).
- Smart Commute: the City of Lebanon is enrolled as an employer in the regional Smart Commute program (administered by the Upper Valley Transportation Management Association and the Upper Valley Trails Alliance), which helps employers promote commuting and mobility options to employees, including carpooling, taking the bus, biking, walking, and telecommuting.
- Landfill Gas Project: the Lebanon Solid Waste department is currently working with Carbon Harvest on a project to capture methane gas emitted from waste deposited at the landfill. The electricity produced will be sold to the grid, and the heat by-products will pass under NH 12A in pipes to supply heat to Car- roll Concrete.
- Performance Contract: the Lebanon Department of Public Works has expanded its contract with Honeywell in order to better monitor the HVAC and other energy use systems of more municipal buildings. This contract may provide opportunities to implement a number of energy efficient upgrades suggested in the MEAP and ETAP reports.
- Wastewater Treatment Plant (WWTP) Energy Audit: the WWTP had an energy evaluation done in July 2010, which revealed energy saving opportunities for processes, pumping, and HVAC systems. Decision-makers and designers are using the report’s findings integrate energy efficiency improvements during the planned WWTP upgrade.
- Airport: the Lebanon Municipal Airport is working to address a number of projects that would increase its energy efficiency, including upgrading its boiler. In the long-term, Airport Management is interested in solar options, and the City is currently exploring green airport technology.

key points | issues & priorities



- Reduce the City’s operating expenses by improving energy efficiency of municipal buildings, the municipal fleet, and outdoor lights.
- Reduce reliance on foreign oil and all fossil fuels, improve air quality, stabilize the price and supply of energy, and show regional leadership.
- Explore alternative energy sources such as hydropower along the Mascoma River, biomass heat and power for buildings, methane gas to energy, and liquid natural gas.
- Maintain small town character and quality of life by transitioning to small scale, sustainable power sources that once propelled economic development and prosperity in Lebanon.

key points | Existing Conditions & Trends



- The City of Lebanon spends about \$1 million on energy costs per year.
- Municipal operations emit about 8 million pounds of CO2 per year.
- Commercial operations (including commuters) emit about 1 billion pounds of CO2 per year.
- The City of Lebanon is already committed to energy efficiency and alternative energy sources, seen through a number of well-established initiatives such as the Lebanon Energy Advisory Committee, Lebanon’s Principles for a Sustainable Community, the landfill gas project, two LEED certified municipal buildings, and an anti-idling policy for DPW vehicles.
- Businesses and institutions within Lebanon are committed as well, for example Kleen Laundry’s transition to liquid natural gas, and numerous large employers in Lebanon are enrolled in the Smart Commute workplace commuter trip reduction program.

- LEED Certifications: the Kilton Library in West Lebanon and the Department of Public Works Administration Building in Lebanon are both LEED-certified buildings. LEED-certified buildings have increased energy efficiency, increased patron comfort, and lowered energy costs.
- Anti-Idling Policy: this policy states that no City vehicle/equipment is left running when the driver is not present after proper start procedures occur, nor is idling for more than 10 seconds permitted unless specifically exempt. This policy reduces City operating expenses, lowers emissions, and improves air quality for residents and employees.
- Lebanon School District: the school district uses biodiesel in the school bus fleet, installed a wood pellet boiler at Mt Lebanon School, and the new Lebanon Middle School will follow the Northeast Collaborative for High Performing Schools Protocol.
- Lebanon Energy Plan: this document is Lebanon's first ever energy plan. The plan reflects the City's existing commitment to a sustainable energy future, and is a resource for all of the City's existing and potential energy uses, projects, and resources.

13 | E-2 Energy Use & Cost Inventory

The 2009 New Hampshire Municipal Energy Assistance Program saw Vital Communities and SERG conduct a comprehensive municipal energy inventory for Lebanon. This included municipal buildings, vehicles and streetlights. The City spends approximately \$1 million on energy costs annually. Lebanon's total yearly energy use is the equivalent of about 2,000 cords of hardwood.

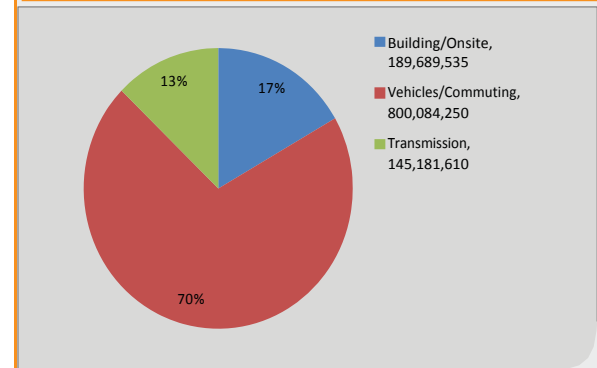
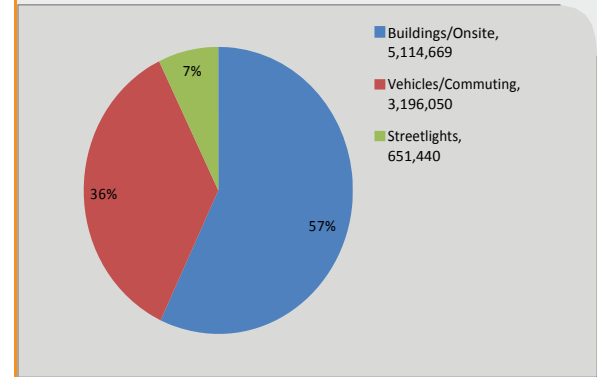
13 | E-3 Municipal Building Energy Inventory

The energy use data (consumption of electricity and fuel) is entered in EPA Portfolio Manager for years 2009-2011 for 12 municipal buildings. It behooves the City and the LEAC to maintain this building energy inventory to measure and track reductions in energy use over time. This tool converts different energy sources to a common measure: the British Thermal Unit (BTU) measured in thousands of BTUs (kBTU) or millions of BTUs (MMBTU). One BTU is the amount of energy required to heat one pound of water by one degree.

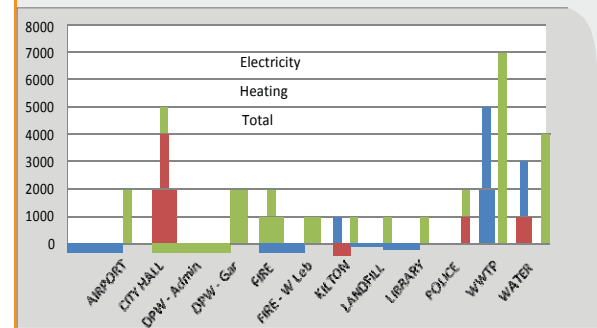
The chart at lower right provides a comparative energy use analysis of 12 municipal buildings. Electricity use, fuel use, and total energy use figures are displayed for each building in millions of British Thermal Units per year. The following recommendations are based on these charts:

- City Hall should be targeted for near-term energy efficiency projects. Recommendations for building efficiency upgrades can be found in a 2009 audit in the energy implementation plan.
- Energy use per square foot gives a good sense of which buildings are most and least efficient. Dividing the total energy use of the buildings in the chart by the square footage of the buildings, places three buildings as the highest use, lowest energy efficiency: City Hall, the Police Station, and the West Lebanon Fire Station. These buildings should be targeted for near-term energy efficiency improvement projects.
- The Water Treatment Plant and Wastewater Treatment Facility both use a lot of electricity to power their processes. Both facilities recently received energy efficiency audits and the City should implement recommendations from those audits to save money and reduce energy use.

Several of these buildings were included in the ETAP building assessment program, which lists prioritized energy efficiency improvements. Full details of the assessments are included in the energy implementation plan.



estimated CO2 emissions (lbs) from municipal (above) and commercial (below) activity from 2009
Lebanon Planning Office



selected municipal buildings: annual energy use (MMBTU)
Lebanon Planning Office

13 | F **Future Challenges & Opportunities**

13 | F-1 **Regional Coordination & Leadership**

The City of Lebanon has a strong commitment to leading-by-example in areas such as energy efficiency to demonstrate cost-effective solutions to citizens, businesses, and other municipalities. As the regional center for the Upper Valley, Lebanon has a tremendous opportunity to benefit from energy savings by residents and businesses. The City of Lebanon should coordinate with the Lebanon School District on energy projects and participate in the many local, regional, and state initiatives underway.

As a regional leader, the City of Lebanon should promote private-public partnerships, and inspire the commercial sector to invest further in efficiency and renewable technology by paving the way.

The City should consider an “energy coordinator” position that would manage energy projects, measure savings over time, leverage the work done in different departments throughout the City, and coordinate with regional and state efforts to make Lebanon a model for other municipalities. This position or contract could be paid for by savings incurred through energy efficiency projects.

13 | F-2 **Energy Efficiency**

In conjunction with the Energy Plan project, the Upper Valley Lake Sunapee Regional Planning Commission enrolled the City of Lebanon into the New Hampshire Energy Technical Assistance Program (ETAP). This American Recovery and Reinvestment Act funded program supplied the City with an engineer who did two days of valuable walk-through assessments of eleven municipal buildings. The engineer worked with City staff on the assessments and submitted a report to the City and LEAC that details many opportunities for energy savings in low-performing municipal buildings. The report estimates potential energy savings, cost avoidance, and simple payback.

The ETAP Project Action List provides the City with opportunities to invest in the energy efficiency of municipal buildings to save money over time, improve air quality inside the building, improve occupancy comfort, reduce carbon emissions, and preserve the historic character of buildings and landscape. The Project Action List and full report is available in [Appendix B](#).

13 | F-3 **Renewable Energy Opportunities**

The City shall actively pursue opportunities to develop and purchase renewable energy sources such as hydropower, wind, solar, biomass, methane, and geothermal.

13 | F-3a **Hydropower.** Like many New England towns, Lebanon was born on hydropower. Many dams, wheels, and turbines powered economic development for decades. When grid electricity became widely available and inexpensive in the 1950s, it was often more economical for businesses to tie into the grid rather than produce their own electricity. Most turbines, wheels, and hydromechanical pumps were abandoned. The two existing hydropower stations on the Mascoma River in Lebanon are privately owned, one by Rivermill Hydroelectric, Inc. and the other (on the Glen Road Dam) by Enel North America Inc. The City should encourage the Rivermill complex to improve maintenance of the facility and onsite power generating capacity. The Department of Energy’s Virtual Hydropower Prospector identifies a number of environmentally sound sites that could be

developed for hydropower without building any new dams, using damless diversions, which the City should investigate further by conducting feasibility studies.

There are a number of opportunities for small hydroelectric and hydromechanical projects at the Water Treatment Plant. Until the 1950s, the Mascoma River provided the energy to hydro-mechanically pump treated drinking water to the top of Reservoir Hill for next to no cost. Since abandoning the hydromechanical pump in favor of an electric grid-powered pump, the City incurs nearly a \$10,000 per month electric bill onsite at the Water Treatment Plant. Three pump stations throughout the City have been identified to have the potential for making onsite power by installing small Cla-val turbines. [Details are located in Appendix C.](#)

The Upper Valley Lake Sunapee Regional Planning Commission completed a mapping exercise for renewable energy resources for the Lebanon Energy Plan. The maps and analysis provide an initial City-wide inventory of existing dam sites and assessments of the potential for solar and wind projects. For more detailed analysis and to view the City-wide maps of the dam inventory and solar and wind potential, refer to the end of [Appendix C for hydro](#), [Appendix D for solar](#), and [E for wind](#).

- 13 | F-3b **Solar PV.** The City-wide solar analysis identifies locations in the City that may have the highest potential for solar energy production, either for on-site power generation or for distribution through the grid. The analysis and maps show potential for solar production in both January and July, but site-specific solar power feasibility analyses should be conducted by a solar energy specialist if the City decides to investigate candidate locations further.
- 13 | F-3c **Wind Power Potential.** The wind power potential map shows limited opportunity for a municipal or small scale commercial wind energy project in Lebanon. Some of the higher elevations in east and northeast Lebanon have moderate to fair wind energy production potential, but likely not sufficient to warrant commercial scale wind energy projects. There is a specific economy of scale for wind turbine projects, which is why utility scale units are so large. However, small-scale residential projects in these areas may be explored further. Location, scale, cost, environmental impacts, yield and sustained wind patterns are important factors to consider potential sites for residential wind energy production. The City could encourage small-scale residential projects through permissive land use regulations or by purchasing an anemometer to test potential sites.
- 13 | F-3d **Biomass.** Biomass is a relatively untapped renewable energy resource in the Upper Valley for producing heat and electric power. Biomass plants are fed by forest byproducts, agriculture byproducts, and other sources. Properly designed biomass heat and power projects promote sustainable forestry policy, extend the life of local landfills by diverting waste, emit little carbon into the air, and support the local economy. Nearly 80% of the Upper Valley is wooded, and 75% of Lebanon is undeveloped land. The City should explore biomass potential on a small scale, and coordinate regionally to explore the potential for biomass power production in the Upper Valley.



- The City needs to monitor and manage its energy use in order to prioritize actions and measure progress over time.
- As a regional leader, the City should pave the way for more public-private partnerships such as the Lebanon landfill energy project, and inspire the commercial/institutional sector to invest in energy efficiency and renewable technology.
- The City can make well informed energy efficient upgrades based on information provided by the professional grade energy audits of four municipal facilities, and the walk through energy evaluations of eleven municipal facilities.
- The City shall actively pursue opportunities to develop and purchase alternative energy sources such as micro hydropower along the Mascoma and at the Water Treatment Plant, and liquid natural gas and biomass for heating buildings.
- Transportation and commuting accounts for the most significant portion of Lebanon's overall energy use and should be addressed collaboratively with employers and surrounding municipalities.
- Lebanon needs more energy efficient land use patterns and should coordinate regionally to reduce vehicle miles travelled for residents, commuters, and visitors, and encourage mixed use and infill development.
- Develop an ordinance that requires energy efficient lighting for all new developments.
- Adopt more stringent energy efficient building codes for new developments.
- Adopt a tax-neutral property tax exemption for renewable energy projects for home and business owners.
- Pursue creative financing mechanisms to fund energy improvements such as grants, energy performance contracts, and an "Energy Fund" consisting of monetary savings realized out of local efficiency projects.
- Measure progress and share success to verify results and catalyze more action.

2011 Commuting Baseline Data for City of Lebanon Employees only	
Average Daily Commute Distance	26.6 miles (35 miles is the regional average)
Average MPG Rating of Employee Vehicles	24.7 miles per gallon
Primary Commute Mode	89% - Drive alone 5% - Walk 4% - Carpool 2% - Advance Transit
Annual Fuel Use for Commuting by All Employees	49,754 gallons per year
Annual Fuel Cost Incurred by Employees (\$3.60/gallon)	\$179,114
Annual CO2 Emissions from Commuting	974,433 pounds

The Kilton Library, Mount Lebanon Elementary School, Lebanon Middle School, and Sachem Village housing in West Lebanon have biomass heating. Several of Lebanon’s employers are exploring biomass as a heating option for their facilities. Lebanon should consider further biomass projects as a viable alternative to fossil fuel burning systems for heating larger facilities. Lebanon should conduct a feasibility study to assess the potential of a downtown Lebanon district combined heat and power biomass project.

13 | F-4 **Transportation**

Transportation accounts for a significant percentage of greenhouse gas emissions and energy use in Lebanon. Indeed, across northern New England, the “transportation system produces more carbon dioxide pollution... than any other part of the region’s economy.” The City of Lebanon should address this major source of pollution through efficient land use planning that promotes all transportation modes, a reduction in municipal vehicle fleet fuel use, and encouraging workplaces, including the City, to engage employees in trip-reduction programs, such as Smart Commute Upper Valley.

13 | F-4a **Commuting.** Commuting accounts for approximately 11% of all municipal CO2 emissions and represents a significant cost for municipal employees. In spring 2011, the City of Lebanon worked with the Upper Valley Transportation Management Association to collect baseline data on commuting habits and preferences. The chart at left shows this data.

The City should aim to lower the drive-alone rate of City employees by 10% over the next three years and improve employee access to commuting options. To achieve this, the City should support a multi-modal transportation system that provides employees, residents, and visitors ways to travel around Lebanon without driving alone. The City should also partner with employers and surrounding municipalities to lower the overall drive-alone rate of commuters in the micropolitan region by 10%.

The City should also consider integrating electric vehicle charging stations in strategic locations. Nissan and Chevrolet now market electric cars, and installing vehicle charging stations within the City might encourage residents, businesses, and employees to use electric vehicles. The electric vehicle charging stations would require consumers to purchase electricity.

13 | F-4b **Vehicle Fleet.** MEAP data from 2009 show that the City spends about \$275,000 on fuel costs for its municipal fleet each year. This figure does not include vehicle maintenance and secondary impacts such as road wear and tear. The City has begun to address this cost by enforcing an anti-idling policy for Department of Public Works vehicles and machines; however the City should enforce this policy City wide. The City could install idle controls in the municipal fleet to limit the idle time.

The City should consider purchasing biodiesel for the municipal fleet. The Lebanon School District currently purchases biofuel from locally owned Evans Fuel for the school bus fleet since 2006. According to the School District Transportation Supervisor, the buses using biodiesel do not emit strong fumes that regular diesel buses generate, which improves the air quality for students and staff. Since transitioning to biodiesel, the District has had very few fuel filter problems, even less than with regular diesel. The District adds an anti-freeze solution to the fuel to prevent gelling at below freezing temperatures.

13 | F-4c **Energy Efficient Purchasing Policy.** A sample energy efficient purchasing policy can be found in the Implementation Plan. The policy is based on New Hampshire Executive Order 2005-4, which requires state departments to purchase efficient vehicles (fuel economy of at least 27.5 miles per gallon for passenger and light duty vehicles, 20 miles per gallon for trucks) and Energy Star rated Office and building equipment, unless justification is provided.

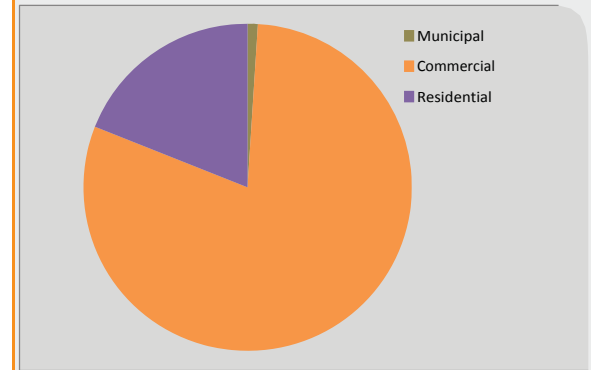
13 | F-5 **Commercial Sector**

Lebanon is home to most of the Upper Valley's largest employers. According to the Lebanon NH-VT Metropolitan Statistical Area report (2006), 13,000 people commute into Lebanon daily to supplement the 5,000 workers travelling within Lebanon for work. In addition, many employees travelling to work in Hanover and Hartford commute through Lebanon, particularly on the NH Route 120 corridor. Between the commuting costs for the workforce and the large energy use onsite at many employers, a tremendous amount of energy is used by the commercial sector in Lebanon. A lot of this energy is used to power buildings and operations, like at Dartmouth Hitchcock Medical Center, or to power industrial processes in manufacturing, like at Timken. The pie chart on page 13-7, however, shows that 70% of commercial carbon dioxide emissions are generated by vehicle emissions from their employees' commute. The average commute distance for Upper Valley employees is 35 miles round trip. Around 17% percent of commercial emissions are from building and onsite, direct energy use, and the remaining 13% is emissions created through the transmission and production of the energy itself. Because Lebanon's commercial sector uses a tremendous amount of energy, it is essential that the City of Lebanon lead by example and show businesses that reducing energy use onsite, exploring alternative and more efficient energy solutions, and reducing their employees' vehicle miles travelled is essential to significantly reducing energy use and greenhouse gas emissions in Lebanon.

The graph to the right shows the proportions of energy related emissions throughout the City. The commercial sector is the largest user, followed by the residential sector. Even though municipal functions account for only 1% of the overall emissions, this represents \$1million of taxpayer money the City has direct control of. Within the commercial sector, many businesses in Lebanon and throughout the Upper Valley are taking significant steps to reduce their energy use and save money. For example, Kleen Laundromat recently switched to natural gas, which is one of the cleanest burning fossil fuels widely available. Alice Peck Day Memorial Hospital convenes a group of stakeholders that discuss climate adaptation in the Upper Valley. There are dedicated staff working on energy management and expanding the renewable energy portfolio at Dartmouth Hitchcock Medical Center. Finally, Carroll Concrete in West Lebanon partnered with the City of Lebanon to purchase methane from the Lebanon Landfill to heat their operations. Lebanon should continue to pursue public-private partnerships and promote the energy work being done by Lebanon's large employers.

13 | F-6 **Land Use**

Much of New Hampshire's growth over the last 40 years occurred as dispersed, rural and suburban development. This low-density growth pattern has resulted in increasing travel distances and commuting costs for residents. The New Hampshire transportation sector is the leading sector for carbon emissions and energy costs.



Lebanon's approximate overall carbon emissions
Even though municipal functions account for only 1% of overall emissions, this represents \$1 million of taxpayer money

It is important to recognize the impact that land use can have on energy efficiency and energy consumption at the community level. Increasingly energy is being treated as a shared community resource and is subject to planning efforts traditionally reserved for natural or cultural resources. This energy plan is an important step in developing a vision that integrates land use and energy conservation for the health and welfare of the City's residents and visitors.

Energy and land use planning practices can affect both existing built environments and undeveloped lands. Energy-efficient land use planning for developed areas may include broadening potential land uses and encouraging infill development to allow an appropriate mix of uses. Examples of such benefits include allowing small-scale commercial retail uses in a traditionally residential area, which could encourage residents to walk or bike to neighborhood stores rather than drive to regional malls; or encouraging redevelopment of existing buildings that may result in private investment in improving a building's energy efficiency. Energy-efficient land use planning for new developments might include guidance in energy-efficient development practices or incentives (e.g. increased density allowances) for energy-efficient or renewable energy development.

On a regional scale, Lebanon and surrounding municipalities should have regional discussions to coordinate land use patterns that reduce vehicle miles travelled for residents, commuters, and visitors.

13 | F-7 Outdoor Lights

In May of 2009, the Lebanon Public Safety Committee approved a plan to remove some select streetlights over a two-year period. In 2010, the LEAC and City Staff have worked a great deal to identify each outdoor light in the City's control, and map the lights. After completing an inventory of the existing lights the LEAC modified the original proposal. The LEAC proposes to remove 40-50% of the outdoor streetlights in the City and reduce the City's streetlight bill by at least 25%. For the lights that remain, the City should upgrade those lights to LEDs or other more efficient options approved by the utility company.

13 | F-7a **Rationale for Changes.** In determining which lights are candidates for removal, primary consideration is given to safe vehicle traffic and the safety of pedestrians in high traffic areas. Each light needs to be evaluated in order to determine if it is essential to the safety of the community. In addition, there are other street and decorative lights on the Lebanon Mall that the City owns privately. The City should upgrade these lights to LED or other efficient models as a private investment with relatively quick payback. For the full Streetlight Removal Plan, refer to [Appendix I](#).

13 | F-7b **Lighting and New Development.** New multi-family residential, industrial and commercial development often require new outdoor lighting for building and parking lot safety as part of the development proposal. The City should consider energy efficiency standards for outdoor lighting and require LED or other energy efficient lighting technologies.

13 | F-8 Policy Recommendations

13 | F-8a **Energy Efficient Building Codes.** The New Hampshire State Building Code allows local governments to adopt building codes that are different than the state's requirements if such codes are more stringent than the state code. The state code is currently an adoption of the 2009 International Energy Conservation Code (IECC). The City of Lebanon could adopt a more recent IECC, preferably 2012, which includes several improvements

over previous versions. New, cost-effective energy-saving requirements include required programmable thermostats and increased minimum insulation levels. Please refer to [Appendix G](#) for more detailed analysis and case study.

Property Tax Exemption for Renewable Projects: The Lebanon City Council should consider a resolution to adopt NH RSA 72:61 et seq. (“Property Tax Exemption for Renewable Energy”) as a tax-neutral incentive for renewable energy development. Originally passed in 1976, this tax exemption covers the added property value of a newly installed renewable energy system and does not reduce the tax revenue from a property itself. This tax benefit is attractive to building owners who wish to install renewable energy systems but find the added taxable property value – and resulting tax payment - a disincentive. It is attractive to the City as a revenue-neutral and flexible means to support renewable energy generation. Please refer to [Appendix H](#) for more detailed analysis and case study.

13 | F-9 [Local Food & Agriculture](#)

Lebanon residents and businesses that purchase local food support the local economy and help preserve the working landscape. Lebanon has several farms that produce food and goods sold to local markets and restaurants. Several farms mark the Lebanon landscape, making products such as apple cider, dairy goat products, vegetables, and fruits. Farms within a 25-mile radius to Lebanon city center provide access to many more local foods and meats that could supply Lebanon restaurants and City functions with more local food choices. The Lebanon Farmer’s Market runs weekly in the summer months at Coburn Park, and now includes a monthly Winter Market.

As food has been shown to travel an average of up to 1500 miles from the farm to the table in the US, purchasing locally grown food in the Upper Valley can reduce fuel and transportation impacts associated with shipping and packaging food. Generally, the closer the farm is to Lebanon, the less fossil fuel is used to transport food to local markets. The City should continue to support and promote a robust network of local farmers at the Lebanon Farmer’s Market, consider expanding market sites to larger employers, source local foods at City sponsored functions, and consider establishing more community gardens in City neighborhoods.

To search detailed listings for local food outlets in Lebanon and the greater Upper Valley, visit the Valley Food and Farm online searchable guide at www.vitalcommunities.org/agriculture. The Upper Valley Lake Sunapee Regional Planning Commission is doing a food source mapping study, and more information can be found at www.uvlsrc.org.

13 | F-10 [Education & Outreach](#)

LEAC maintains a website that can be linked to on the City of Lebanon’s website, and has up to date information about meetings, current projects, and local resources. LEAC has sponsored Button Up New Hampshire workshops in the past and should continue to coordinate opportunities to educate Lebanon residents on ways to save money and be more energy efficient.

LEAC and City management have the opportunity to encourage City of Lebanon employees to save energy and money through their behaviors. Outreach campaigns could focus on commuting habits, turning off lights and appliances, controlling space temperatures, composting, and recycling.

13 | F-11 **Financing**

The City shall actively pursue federal, state, regional, and grants for projects identified in this plan. Other creative financing mechanisms shall be considered as well, such as an “Energy Fund” to support municipal, residential, and commercial energy initiatives.

At the time of this report there are limited funds or opportunities for municipalities to receive outside funding to promote energy efficiency improvement programs. The following programs review funding options other than traditional financial tools including municipal bonds or direct lending. These funding sources are not a guarantee for success, but they may help the City identify financing vehicles. It is important to note that the City is paying for energy regardless of whether there is a commitment to improve municipal energy efficiency.

13 | F-11a **Capital Improvements Program.** The Capital Improvements Program (CIP) applies to any municipal construction or improvement project that exceeds \$50,000 in total costs. The Energy Plan lists many “shovel ready” projects, particularly energy efficiency projects for municipal buildings and small hydropower projects that will likely qualify for the City CIP. The Lebanon Energy Advisory Committee should advocate for certain energy saving projects to be included in the City’s CIP.

13 | F-11b **Energy Fund.** The City of Lebanon should consider forming an “Energy Fund” that consists of monetary savings realized out of efficiency projects. The Energy Fund could be used to finance other energy savings projects, and/or pay for a part time energy coordinator to manage the City’s energy use, measure savings, and apply for funding for energy savings projects.

13 | F-11c **Consolidating Energy Efficiency Projects.** Many individual energy efficiency projects do not qualify to be listed in the CIP (e.g. upgrading building lights or temperature controls) and often are listed as part of the facility maintenance budgets for the individual City Departments. Coordinating and combining these small-scale energy efficiency projects among Departments into one contract could help the City realize an overall savings through economies of scale. This approach would be for well-defined energy efficiency or maintenance projects that may not be covered under a Performance Contract.

13 | F-11d **Performance Contract.** New Hampshire municipalities are allowed to finance large energy efficiency projects through an Energy Savings Performance Contract agreement with an Energy Services Company (ESCO). Currently the Lebanon Landfill project has an energy savings performance contract with an ESCO, Carbon Harvest. The ESCO helps design the project and purchases and installs the necessary equipment. In exchange for paying for the upgrades and equipment upfront, the ESCO receives a share of the cost savings that result from the energy efficiency work.

The City of Lebanon has a building performance contract with Honeywell. Currently Honeywell is expanding the number of municipal buildings that can be monitored for building performance and energy use by the Department of Public Works administrative Offices. The City should research and consider whether Honeywell can finance specific energy efficiency projects through Energy Saving Performance Contracts.

- 13 | F-11e **Municipal Energy Reduction Fund.** New Hampshire’s Community Development Finance Authority’s Municipal Energy Reduction Fund is available to help municipalities improve the energy efficiency of their municipal buildings, street lighting, water and sewer treatment facilities, and where appropriate, electrical distribution systems. The goal is to reduce energy usage and costs. CDFA is currently accepting applications from New Hampshire Municipalities through an online grants management system for funding through the Municipal Energy Reduction Fund.
- 13 | F-11f **Planning Grants.** Local and regional governments often apply for and receive funding for planning efforts to continue progress for municipal energy efficiency (This Energy Plan is funded by one such grant.). In 2011 the nine regional planning commissions in New Hampshire received significant funding from the US Department of Housing and Urban Development to develop individual regional plans and a statewide development plan.
- 13 | F-11g **Ongoing Grant Updates.** The US Environmental Protection Agency lists many potential funding resources for energy projects here: <http://epa.gov/statelocalclimate/state/activities/funding.html>.
- 13 | F-11h **Power Purchasing Agreements.** The City of Lebanon may choose to negotiate a power purchasing contract for its electric consumption. Currently the City purchases electricity from the local utility company and receives monthly bills for each meter. The City is subject to constant fluctuations in the price of power. A power purchasing agreement (PPA) is a fixed cost contract that usually covers a period of 1 or more years in which electricity is delivered through local transmission lines, but purchased elsewhere. The PPA contract price reflects market conditions at the time the contract is negotiated. The price remains fairly constant during the duration of the contract, often resulting in significant financial savings. Through a PPA, the City can also purchase a certain percentage of renewable energy. (Source: US Energy Information Administration).
- 13 | F-11i **Aggregate Power Purchasing.** A group of communities and and/or larger utility users (e.g. large employers, school districts, large commercial power consumers) can coordinate to aggregate their electric supply accounts and negotiate lower power generation rates than are offered through the existing regional power supply companies. By aggregating the power demands among the City and other partners (e.g. DHMC or the Lebanon School District facilities), the group of public and private entities are in a position to potentially save up to 30% on power generation costs.

13 | F-12 **Measuring Progress**

It is important to set up systems to track progress toward the stated goals and visions in the Energy Plan in order to measure energy and cost savings.

Twelve of Lebanon’s most visible and energy intensive municipal buildings are tracked in the EPA Portfolio Manager online tool. The tool requires specific building characteristics like square footage and year built, electricity statements and fuel consumption records to calculate a baseline. The Lebanon Energy Advisory Committee and Vital Communities have been collecting and analyzing this information since the baseline data was collected in 2009 through the NH Municipal Energy Assistance Program and allows users to see changes in energy use and track fiscal savings over time. It is highly recommended that the City maintain this free tracking system.

The Lebanon Energy Advisory Committee recommends reducing the number of kilowatts per taxpayer per year and reducing the number of gallons of fuel per taxpayer per year to show per capita energy use reductions from the baseline.

The Lebanon Energy Advisory Committee will work to suggest other tools and metrics to the City for tracking energy savings over time that might include indicators such as employee behaviors changes like increased carpooling, increased residential recycling, increased vendors and local food purchased at the Farmer's Market, investment in renewable energy projects by residents and businesses, and increased public private partnerships. Additional research by the LEAC should consider metrics for measuring the impacts of renewable energy generation in terms of economic impact and price stability.

13 | F-13 **Sharing Success**

It is important to share the successes of the LEAC and the City internally and publicly. The City should consider ways to share what it's doing with energy efficiency and renewable energy projects with residents, businesses, institutions, and visitors throughout the Upper Valley and State of New Hampshire. By sharing success and spreading positive messages about saving money and energy, the City can catalyze further efforts and inspire others to act. The City could publish an annual energy savings report, maintain an energy related presence in City e-newsletters, social media, and websites, keep state agencies and elected officials updated on the progress, and continue to discuss progress, challenges, and best practices with other regional energy saving advocates.

OVERALL LONG-TERM GOAL:
 Lebanon is a leader in energy efficiency, renewable energy reliance, and innovation across municipal, commercial, institutional, and residential sectors.

13 | G **Outcomes & Strategies**

OUTCOME 1 The City’s buildings are energy efficient and new construction and redevelopments adhere to energy efficient standards.

STRATEGIES	
A	The City shall maximize energy efficiency in municipal buildings and encourage efficiency in commercial and residential buildings.
B	The City shall develop guidelines to encourage energy efficient construction.

ACTIONS	
Assess and execute as many ETAP Project Action List items as possible	1
Adopt Energy Efficient Building Code policy	2
Revise existing subdivision and site plan regulations to be more energy efficient	3
Educate taxpayers about dollars saved over time when money is invested in energy efficiency	4

OUTCOME 2 The City relies upon as much local renewable energy as possible.

STRATEGIES

- A** The City shall actively pursue opportunities to expand its use of renewable energy sources, such as hydropower, wind, solar, geothermal, and consider purchasing renewable energy from utility companies if offered.
- B** The City shall encourage the commercial and residential sectors to invest in renewable energy.

ACTIONS

- 1 Adopt a tax-neutral Property Tax Exemption for renewable energy projects
- 2 Conduct feasibility studies on the sites for solar power potential based on the Solar Map
- 3 Assess the feasibility of solar domestic hot water in new and existing municipal buildings
- 4 Look into alternative ways of assessing wind power generation potential
- 5 Encourage residents that benefit from moderate to fair wind power potential to explore small scale residential wind power projects
- 6 Assess feasibility of implementing the recommendations of the hydropower study to improve energy efficiency for the municipal water and wastewater systems
- 7 Encourage Rivermill Hydroelectric, Inc. to improve onsite efficiency and power capacity at the Rivermill Dam
- 8 Be involved in any hydropower development proposals along the Mascoma River
- 9 Consider moderate-scale district heating systems in new or existing office and industrial parks. These district heating systems could be based on a public/private partnership to cost-effectively implement high-efficiency heating among multiple buildings.
- 10 Research potential for possible public private/partnerships to develop biomass or liquid natural gas district heating and power plant projects in areas like business and industrial parks, downtown Lebanon, or downtown West Lebanon
- 11 Participate in regional discussions about opportunities for biomass heat/power and liquid natural gas
- 12 Continue to take advantage of geothermal resources in new construction, similar to Kilton
- 13 Study the feasibility of ground-source-heat pumps in new and upgraded municipal buildings
- 14 Encourage businesses to invest in renewable energy generation

OUTCOME 3

There is a culture of energy efficiency and conservation within the City’s municipal, commercial, institutional, and residential communities.

STRATEGIES

- A** The City shall actively pursue federal, state, and regional funding and grants for projects identified in the Energy Plan. Other creative financing mechanisms shall be considered to support municipal, residential, and commercial energy initiatives.
- B** The City shall encourage municipal departments, residents, businesses, institutions, and visitors to support the local economy and preserve the working landscape by purchasing local food.
- C** The City shall conduct and support education and outreach efforts to increase local and regional understanding of the importance to reduce energy use and demand, curb reliance on fossil fuels, and protect the environment.
- D** The City shall explore opportunities to collaborate with local and regional partners, including the Lebanon School District and neighboring communities, to develop regional energy initiatives including aggregated power purchasing, expanded commuter engagement, and other opportunities to reduce energy use and costs.

ACTIONS

- 1 Develop outreach campaigns for City employees, for example, to increase carpooling and recycling
- 2 Host and promote “Button-Up New Hampshire” workshops
- 3 Develop a public education campaign about energy topics including an online and social media presence
- 4 Advocate for projects that reduce the City’s energy consumption and/or introduce renewable energy resources in the Capital Improvement Program
- 5 Investigate opportunities for interdepartmental coordination and funding of energy efficiency maintenance projects in existing municipal buildings
- 6 Establish an ‘energy fund’ to set aside funds to finance further energy savings projects
- 7 Maintain a list of “shovel ready” energy-related projects to take advantage of potential future funding and grant programs offered by federal and state agencies
- 8 Create or contract an ‘energy coordinator’ position
- 9 Expand the work of the Lebanon Garden Committee to establish community gardens
- 10 Conduct outreach to promote and strengthen Lebanon’s Farmer’s Market
- 11 Use and promote local food at City events
- 12 Research technical programs to add in Lebanon School curriculum to involve students in energy efficiency and conservation

OUTCOME 4 The City’s residential, commercial, and institutional sectors privately invest in energy efficiency and renewable energy projects.

STRATEGIES

- A** The City shall take active steps to encourage residents, businesses, and institutions to invest in efficiency and renewable technology.
- B** The City shall pursue public-private partnerships to save money and generate energy.
- C** The City shall work with area businesses and institutions to leverage educational opportunities.

ACTIONS

- The Lebanon Energy Advisory Committee should advocate for and the City Council should pass a more stringent energy efficient building code policy **1**
- The Lebanon Energy Advisory Committee should advocate for and the City Council should pass a tax neutral property tax exemption policy for renewable projects **2**
- Encourage the use of natural gas at local businesses (ex: Kleen Laundry) **3**
- Explore shared natural gas delivery with other municipalities and businesses **4**
- Explore shared biomass power production opportunities (ex: Unity, NH) **5**
- Continue to explore partnerships with the private sector to maximize energy savings on specific projects (ex: Landfill project) **6**
- Demand rigorous commissioning and review for energy efficient opportunities on all projects **7**

OUTCOME 5 Lighting throughout the City is efficient, cost-effective, and restores dark skies.

STRATEGIES

- A** The City shall maintain a current map and inventory of all exterior lights.
- B** The City shall reduce the number of overall lights in its control to save taxpayer money and reduce energy use and night-sky pollution associated with unnecessary lights.

ACTIONS

- Develop an ordinance to require energy efficient lighting for all new designs and projects **1**
- Develop fair criteria for light removal **2**
- Remove all unnecessary lights **3**
- Upgrade existing lights to LED or other efficient models **4**
- Refer to what other municipalities have done to maximize light removal and public satisfaction **5**
- Use cut-off lighting techniques to reduce light pollution of necessary lights **6**
- Incorporate land development regulations that require high efficiency lights for site plan review and development **7**

OUTCOME 6

The City of Lebanon has an economically sustainable, multi-modal transportation network, and municipal vehicle fleet.

STRATEGIES

- A** The City shall develop a multi-modal transportation system that provides employees, residents, and visitors ways to travel around Lebanon without driving alone.
- B** The City shall reduce emissions and costs of vehicles and machines in the municipal fleet.
- C** The City shall improve access to commuting options for City employees and partner with employers and surrounding towns to expand access to all regional commuters.

ACTIONS

- 1 Institute a policy that requires the purchase of energy efficient vehicles and equipment, and insert language into City Request for Proposals and Qualifications
- 2 Consider installing electric vehicle charging stations, for example at park and rides
- 3 Continue support of Advance Transit and promote new routes where appropriate
- 4 Establish new and participate in a regional network of park and ride facilities that connect to transit lines
- 5 Institute a Citywide Anti-Idling Policy based on the current policy issued by the Department of Public Works
- 6 Purchase biodiesel fuel from local vendors for diesel machines and vehicles
- 7 Assess the travel patterns of the municipal fleet and identify more efficient routes
- 8 Examine ways to work with other employers, including the Lebanon School District, to leverage the tools and experience of the Smart Commute program
- 9 Implement recommendations of the City of Lebanon Sustainable Transportation Plan (2011), in partnership with the Upper Valley Transportation Management Association through the Smart Commute program
- 10 Set up an internal carpool matching system to help employees who live near one another share rides
- 11 Examine the feasibility of offering employees a compressed work week (four ten-hour days per week, for example)
- 12 Adopt a telecommuting policy and promote working from home to appropriate employees
- 13 Advocate for wide-reaching broadband service to improve telecommuting options
- 14 Continue to work with the Upper Valley Transportation Management Association to market commuting options and engage employees in a behavior change campaign
- 15 Assess the costs and benefits of offering employees a commuter benefit (extra time off for not driving alone, for example)
- 16 Continue to promote walking and biking in municipal employee wellness programs

OUTCOME 7

The City of Lebanon provides easy access to transportation systems and concentrates activities, amenities and commerce to enhance quality of life, retain small town charm, and increase energy savings.

STRATEGIES

- A** The City shall explore ways to allow residents and visitors to reduce vehicle miles travelled throughout the City.
- B** The City shall assess the current grounds care and landscaping practices within the City's control and explore more sustainable methods with less reliance on fossil fuels.
- C** The City shall explore ways to increase residents' and businesses' access to recycling and local foods.

ACTIONS

- 1 Establish park and ride facilities that connect to transit lines
- 2 Assess feasibility of bicycle rental stations throughout the City, located near bicycle lane networks
- 3 Develop sustainable methods for grounds care and landscaping
- 4 Incorporate green infrastructure -such as street trees, buffers and parks- in road, neighborhood and commercial design, to diminish stormwater runoff, enhance soil capacity to absorb stormwater, enhance the aesthetic value of the landscape, reduce greenhouse gas emissions, reduce the need for traditional stormwater management techniques and reduce energy demands from the urban heat island effect
- 5 Develop land use plans, policies, and regulations to encourage energy efficiency and renewable energy resources for renovation of existing structures and new construction
- 6 Sustainably manage City-owned forest land to provide high-value locally produced wood products, improve recreational use, and wildlife habitats
- 7 Promote locally produced foods and products
- 8 Promote the Lebanon Farmer's Market and encourage participation by local vendors
- 9 Provide compost disposal at City facilities
- 10 Designate locations for community gardens throughout the City
- 11 Design edible and native plant based functional landscapes throughout the City
- 12 Set up centrally located recycling drop off stations throughout the City that are walkable, visible and attractive
- 13 Study the feasibility of ground-source-heat pumps in new and upgraded municipal buildings
- 14 Encourage businesses to invest in renewable energy generation

Energy Chapter Addendum

For the Energy Chapter of the City of Lebanon Master Plan 2012
Adopted July 10, 2017

Upon recommendation of the Lebanon Energy Advisory Committee and the Lebanon City Council, the City of Lebanon Planning Board adopts the following addendum to the Lebanon Master Plan:

Whereas references to “natural gas” and “liquid natural gas” in two summary “key points” and four specific actions in Chapter 13 are not referenced or supported by the text of the “Vision & Purpose,” “Issues & Priorities,” “Existing Conditions & Trends,” “Overall Long-Term Goal,” or relevant “Outcomes & Strategies” of the Energy Chapter of the Master Plan;

And whereas such references to the possible use or increased use of natural gas do not reflect and are not supported by policies of the City of Lebanon;

Therefore, the following references to “natural gas” and “liquid natural gas” should be considered void and of no effect as if they were stricken from the text of the Master Plan as shown below in strikethrough text and with corresponding editorial adjustments shown in [brackets] below:

- Page 13-5 Bullet: Explore alternative energy sources such as hydropower along the Mascoma River, biomass heat and power for buildings, [and anaerobically generated] methane gas to energy, ~~and liquid natural gas~~
- Page 13-5 Bullet: Businesses and institutions within Lebanon are committed as well, for example ~~Kleen~~
- ~~Laundry’s transition to liquid natural gas, and~~ numerous large employers in Lebanon are enrolled in the Smart Commute workplace commuter trip reduction program.
- Page 13-9 Bullet: The City shall actively pursue opportunities to develop and purchase alternative energy sources such as micro hydropower along the Mascoma and at the Water Treatment Plant, ~~and liquid natural gas~~ and biomass for heating buildings.
- Page 13-18 Outcome 2 – Action 10: Research potential for possible public private/partnerships to develop biomass ~~or liquid natural gas~~ district heating and power plant projects in areas like business and industrial parks, downtown Lebanon, or downtown West Lebanon
- Page 13-18 Outcome 2 – Action 11: Participate in regional discussions about opportunities for biomass heat/power ~~and liquid natural gas~~
- Page 13-20 Outcome 4 – ~~Action 2: Encourage the use of natural gas at local businesses (ex. Kleen Laundry)~~
- Page 13-20 Outcome 4 – ~~Action 3: Encourage shared natural gas delivery with other municipalities and businesses~~