

Town of Lebanon

Build-Out Analysis and Cost of Community Services Study

Prepared by
Green Valley Institute
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A *Build-Out Analysis* is a valuable tool to help a community understand the impacts of development based on current land use regulations. Once a community understands these implications and has a clear vision for its future, it can determine if current regulations meet their needs or if alternatives should be investigated and additional steps taken to address their goals.

The Cost of Community Services Study is a tool used to demonstrate the cost to provide town services on a land use basis. The American Farm Land Trust developed the model 15 years ago, and it has been used across the country to evaluate the differences between revenue generated and services required by specific land uses.



BUILD-OUT

The Build-Out Analysis is based on current zoning regulations that stipulate site conditions prohibiting development (such as wetland soils or steep slopes) and minimum lot size or minimum building envelope size. The analysis then projects the maximum development possible in a community. A Build-Out Analysis isn't an attempt to forecast what will happen, but rather what is possible under current zoning regulations.

Process. The first step in determining how much can be built in a town is to determine what land is potentially available for development. This step is made somewhat easier with computerized mapping, known as Geographic Information System (GIS) maps; Lebanon has a good map database that was a valuable tool in this process.

Parcel Information. Once a year the Town Assessor develops a Grand List of all the properties within the town along with an assessment, for tax purposes, of each property. The Lebanon Assessor had developed a list for 10/1/06 and was in the process of verifying each assessment when we began the data gathering. At the same time, the digitized Lebanon parcel map had just been updated to reflect recent subdivisions. By merging the Assessor data with the parcel map, a table listing all Lebanon parcels, the owner, the use and the acreage was developed. Care was taken to remove from the GIS database any parcels that, based on the assessor's grand list, appeared to now be subdivided and now considered 'developed'; in all cases, when in doubt, the conservative approach was taken. Table 1 summarizes Lebanon's parcel data by development type. Lebanon is currently divided into approximately 4,000 parcels totaling over 35,000 acres, however 67% of the land is not currently protected nor fully developed.

According to GIS calculations, the total area within the town borders is 35,303 acres. This figure was used to verify all calculations throughout the process. The variance between the Grand List totals and GIS were only 61 acres or .1 %.

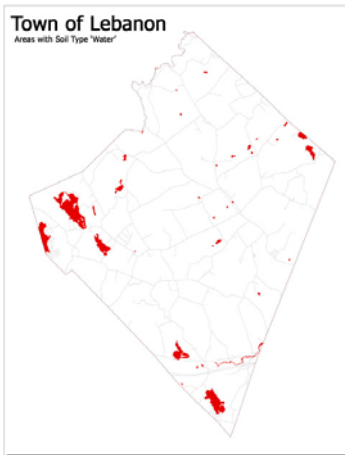
**Table 1
Town of Lebanon
Existing Land Use by Parcel**

	Number of lots	Total Acres
Residential		
Single Family Use (under 5 acres)	2,327	4,031
Single Family Use (over 5 acres)	493	9,511
Multi-Family (under 10 acres)	41	131
Multi-Family (over 10 acres)	10	487
Other	28	60
Commercial		
Commercial Use (under 25 acres)	35	142
Commercial Use (over 25 acres)	11	752
Campgrounds, Fish & Game etc	12	1,021
Permanently Protected		
Permanent Development Rights (PDR)	26	2,870
Land Trusts etc	6	295
State/Municipal/Institution		
State/Town ownership	81	2,997
Quasi Government	4	72
Church/Cemetery	19	32
Unclassified	103	734
Vacant		
Parcels (less than 2 acre minimum)	486	222
Parcels (greater than 2 acres)	511	12,007
	Total	4,193 35,364

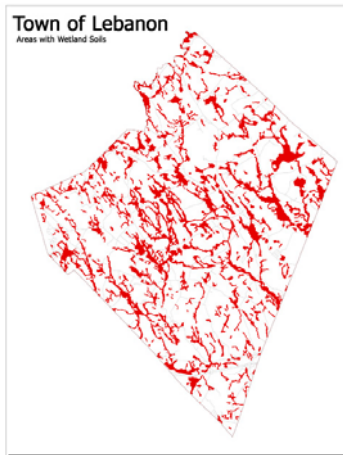
Source: Lebanon Town Assessor data downloaded January 4, 2007

Site Limitations. The next step was to look at site limitation based on current zoning and wetlands regulations that place restrictions for development. In Lebanon, building is not permitted on wetland soils, flood plain soils, within a 100-year flood plain, or slopes greater than 20%; and approval is required within a 100' buffer of a stream or waterbody.

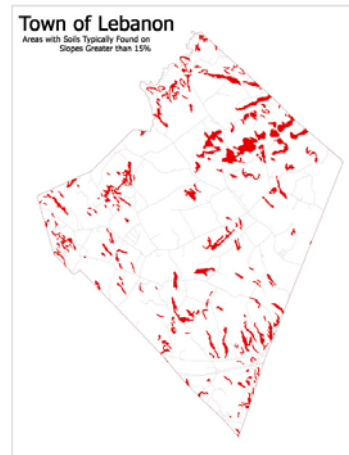
By analyzing Lebanon's GIS information, the site limitations for building can be determined. The USGS Soil Survey data defines soils by various categories including water, hydric or wetland soils, and also by the amount of slope. You can't build in water; Map A shows in red the amount and locations of soils classed as water. Regulations stipulate that you cannot build in wetland soils, or areas with flood plain soils; the USGS Soil Survey refers to these as Hydric Soils and they are shown in Map B along with a 100' buffer along streams and lakes. The USGS Soil Survey does not classify slope at 20%, so slopes greater than 15% were used as depicted in Map C.



Map A: Water

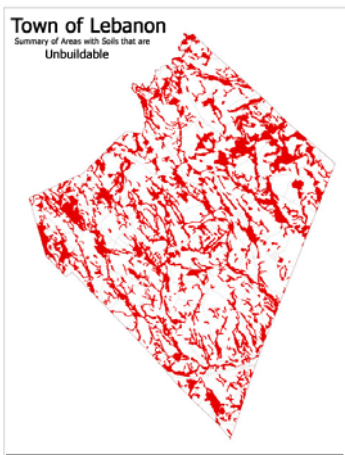


Map B: Hydric Soils



Map C: Slopes > 15%

The result of this analysis is summarized in Map D and also Table 2. Of the 35,303 acres 33.0% has site limitations for development. Much of Lebanon was developed long before these regulations were in place, so some of these 'unbuildable' areas have actually been built upon.



Map D: Summary of all Site Limitations

Table 2
Town of Lebanon
Site Limitations Town-wide

Total Acres		35,303
Site limitation (in acres):		
Slopes > 15%	2,595	
Ponds and Lakes	770	
Streams and Rivers	39	
100' buffer on streams and water	1,492	
Wetlands	<u>6,760</u>	
Total Acres with limitations		11,656
average site limitations town-wide		33.0%

Source: GIS soil data layer by classification from GVI 11/06

Potential for Development. The next step was to determine the parcels that have potential to be developed based on the existing land use. Clearly, vacant parcels over 2 acres, without conservation easements or other protection, have the potential to be developed. Also, some parcels currently used as campgrounds or fish and game clubs, could be developed in the future if the use were to change. In addition, some developed parcels are not fully developed and could conceivably be subdivided in the future. For this analysis, a single family home on a parcel larger than 5 acres was considered to have excess land that could also be subdivided and later developed. Also, larger parcels with multi-family homes, or with a commercial use, were considered to have potential development in the future. Table 3 summarizes the land, by category, which for this study was considered potentially developable.

**Table 3
Town of Lebanon
Existing Land Use by Parcel**

	Number of Parcels	Total Acres
Single Family Use (over 5 acres)	493	9,511
Multi-Family (over 10 acres)	10	487
Commercial Use (over 25 acres)	11	752
Campgrounds, Fish & Game etc	12	1,021
Vacant Parcels (greater than 2 acres)	511	12,007
Total	1,037	23,778

Source: Synthesis of Table 1

Build-out Calculation. The process of calculating build-out includes setting aside land for the existing use (if any), reducing available land by average site limitations (33% in Lebanon), subtracting land (15%) for infrastructure that would be needed to accommodate future growth such as roads and new municipal buildings and parks. For this build-out, it was assumed that lot sizes would continue to be an average of 3 acres, larger than the minimum required. If future lot size averaged 4.5 acres (3 acres without site limitations), an additional 2,992 homes could be built in Lebanon, doubling the current number of residences. If the future average lot size were 3.0 acres (2 acres without site limitations) the number of additional homes would increase to 5,985 homes, triple the current number of residences. Table 4 summarizes the build-out analysis. With the housing pressures facing Eastern Connecticut in the future, a 10% growth rate per decade is likely, if so, build-out could be reached in a little over one hundred years, eighty years if the growth rate is 15%.

**Table 4
Town of Lebanon
Buildout Calculations**

	Available		Acres Set Aside for		Reduced by Avg Limitation	Less 15% for future infrast.	Net Available Acres	If 2 acre buildable area (3 ac)	If 3 acre buildable area (4.5 ac)		
	Lots	Ac.	Avg Ac.	Ex Use							
Single Family Use > 5 acres	493	9,511	19.3	5	14.3	9.6	8.2	4,043	2,021	1,011	
Multi-Family > 10 acres	10	487	48.7	10	38.7	25.9	22.1	221	111	55	
Commercial > 25 acres	11	752	68.4	25	43.4	29.1	24.9	274	137	68	
Campgrounds/Fish&Game	12	1,021	85.1		85.1	57.0	48.7	584	292	146	
Vacant parcels > 2 acres	511	12,007	23.5		23.5	15.7	13.4	6,847	3,424	1,712	
	1,037	23,778							5,985	2,992	
									Current households	2,954	2,954
										203%	101%
									Projected population	21,304	14,171

COST OF COMMUNITY SERVICES STUDY (COCS)

The Green Valley Institute conducted a COCS study for Lebanon based on the 2007 FY budget. Budget documents, bonding structure and financial statements were analyzed, and each budget revenue and expenditure was allocated to one of three land use categories: Residential, Commercial/ Industrial or Open Space/Farm/Vacant.

The residential category includes all town revenues and town expenditures associated with single- and multi-family residences, apartment buildings, farmhouses, and rental units and the people that inhabit them. Town revenues and expenditures associated with businesses, manufacturers or retailers are allocated to the commercial and industrial category. The open space/farm/vacant category includes all town revenues and town expenditures associated with all undeveloped lands, agriculture lands, forests residential land in excess of 5 acres.

For the fiscal year ending June 30, 2007, the study showed that tax revenues from residential properties are not sufficient to support the cost of services provided to them; for each dollar paid in town taxes \$1.12 was used in services. The other two land use categories each paid more in taxes than were used in services.

Although counterintuitive, development over time may not bring lower taxes. There is an immediate increase in tax revenue, but gradually the demand for increased services, and the need to upgrade infrastructure increases expenditures to an amount that exceeds the increased revenue, and the mill rate must be increased. Even new commercial and industrial development can cause an increase in residential development, require additional infrastructure, increase traffic, and have other impacts that can contribute to an increased cost of services.

Lebanon Cost of Community Services Study			
The dollar cost of services for every dollar paid in local taxes			
	Residential	Commercial Industrial	Open Space Farm/Vacant
Lebanon 2006-07	1.12	.16	.17

Table 1. Cost of Community Services Study shows the amount of services provided to each land use category for every \$1.00 paid in local taxes. These results indicate that as land use shifts from undeveloped to residential use, the demand for services increases. This increased demand will result in an increased mill rate.

Other Connecticut COCS Studies			
The dollar cost of services for every dollar paid in local taxes			
	Residential	Commercial Industrial	Open Space Farm/Vacant
Bolton (1)	1.05	.23	.50
Brooklyn (3)	1.09	.17	.30
Durham (2)	1.07	.27	.23
Farmington (2)	1.33	.32	.31
Litchfield (2)	1.11	.34	.34
Pomfret (2)	1.06	.27	.86
Windham (3)	1.15	.24	.19

(1) Geisler 1998; (2) SoNE Forest Consort 1995; (3) GVI 2002

Table 2. Cost of Community Services Studies for other Connecticut towns parallels the Lebanon results and shows that the more developed towns have increased demand for services from residential properties.

FUTURE FISCAL IMPACT: A 20-YEAR PROJECTION

Any land use changes today, will have a fiscal impact in the future. Developing a parcel removes it from a vacant status to 'developed' and increases the grand list used for tax assessments. Because this developed parcel now has a greater demand for town services, town expenses will also increase. For example, if a large parcel were to become a factory employing 50 people with many truck deliveries, perhaps the town would have an added expense of upgrading and maintaining nearby town roads. Many future expenses are incremental – one more house won't mean the need for an addition to the elementary school, but perhaps 30 or 50 more houses would increase the student population enough that an expansion would be necessary.

Assumptions. Projections are based on assumptions. The assumptions that were used for this study are based on information received from Lebanon and other fiscal forecasting studies.

To isolate the effect of change in land use from the effect of inflation and other budget increases, the following assumptions were made for the calculations:

- State aid to Lebanon would remain the same
- State reimbursement rate (%) for education would remain the same
- Lebanon's mill rate was fixed at 25.3, the current rate
- There would be 0 % inflation
- All town salaries would remain the same
- All 2007 debt would be paid within 20 years

Assuming a 10% per decade population growth, in 20 years:

- Revenue from town services and fees would increase at the rate of growth
- Taxes would increase by the growth in the grand list from the shift from vacant to developed
- Certain expenses would increase at the rate of growth (i.e. library, public works)
- Certain expenses would increase at less than the rate of growth because population increase would have limited affect (i.e. legal counsel, elections)
- Certain expenses would increase at a higher rate than the rate of growth because population increase would have a greater affect (i.e. public safety may require addition of one more resident trooper, or additional fire safety personnel and equipment may be needed)

Assumptions made regarding Lebanon education system

- Elementary and Middle School are nearing capacity today
- High School has capacity if out-of-town students not admitted
- School population would increase at a rate of 1.2 per new households

Projections. If Lebanon were to grow at 10% per decade, in 2027 (20 years from today) land use could shift with 2,850 acres removed from vacant land and developed into 631 homes and 5 new businesses. This could result in an increase in the grand list of almost \$72 million and bring in an additional \$2 million in local taxes at today's mill rate. However, the demand for services for an increased population and additional school children would cost an additional \$4.2 million in expenditures, and create a short fall of \$2.2 million, a 3.9 mill rate increase would be needed to balance the budget. These figures are assuming that during those 20 years no major infrastructure projects would be undertaken. However, both the elementary and middle schools are nearing capacity today. If both were expanded at a total cost of \$45 million, after state reimbursements the short fall would increase to \$4 million, requiring a total mill rate increase to 7 mills, a 30% mill increase.