

**Town of Cabot
Build Out and Village Sampling Report
March 2011**

**Prepared by:
Daniel Currier, GIS Manager
Clare Rock, Senior Planner**

Purpose

The Build Out and Village Sampling Report is intended to provide a general picture of development issues in the Town of Cabot in the context of its existing settlement patterns, as well as its potential to accommodate new growth under its current land use policies. CVRPC analyzed these parameters using Geographic Information Systems computer software (GIS) to conduct a Build Out Analysis, as well as a survey (or "sampling") of existing parcels and structures within the Upper and Lower Village.

The Build Out Analysis attempts to identify the general location and intensity of future growth based upon physical restrictions, available infrastructure, and allowable zoning density. It is not intended to suggest or predict the exact sites of futures homes or businesses.

The Village "sampling" of existing conditions within Cabot's Upper and Lower Villages was conducted to determine prevailing lot sizes, setbacks and building footprints in order to compare them to current regulatory requirements as established in the Town Zoning Ordinance.

This report is not intended to be an in-depth critique of Cabot's land use regulations or planning policies, nor an endorsement of any particular regulatory strategy, but rather a broad-brush look at current conditions, existing controls, and future planning options.

Town of Cabot Build Out

The Build Out analysis utilized the current parcel configuration, zoning requirements, and existing development to identify the general location and intensity of future growth for the Town of Cabot.

Three build out models were run. They all included the same parcels, zoning, and existing development but they differ in the constraints that were identified to remove development:

- Build Out 1 Constraints: - Vermont Land Trust (VLT) Conservation Land
- Build Out 2 Constraints: - Slopes greater than 25%
 - NFIP 100 year flood zones
 - Wetlands with 50 ft. buffer
 - Stream, rivers, lakes and pond with 50 ft. buffers
 - Conserved lands (State, Municipal, and VLT Land)
 - Well head protection areas
- Build Out 3 Constraints: - Slopes greater than 25%
 - NFIP 100 year flood zones
 - Wetlands with 50 ft. buffer
 - Stream, rivers, lakes and pond with 50 ft. buffers
 - Conserved lands (State, Municipal, and VLT Land)
 - Well head protection areas
 - Prime agricultural soil intersecting with existing agricultural/open lands*

Numeric and Spatial Results

Each Build Out contains "Numeric" and "Spatial" results. The "Numeric" build-out is a mathematical calculation that measures the holding capacity of land, simply a raw calculation of the number of potential units. The "Spatial" Build Out converts the numeric building counts into points representing individual structures. It then refines the numeric building counts by taking into account the actual geometry (i.e. setbacks) of land-use areas and buildings. The "Spatial" Build Out therefore provides a more accurate indication of potential buildings based upon Cabot's current Zoning Ordinance.

Density Rules

Density rules were applied to calculate the amount of potential future development. The number of potential residential units are calculated based upon Cabot's minimum lot size and are referred to as Dwelling Units. CVRPC converted Cabot's commercial

* Cabot requested this additional constraint to help determine the impacts of permanently conserving current farmland and open space. CVRPC Land Use/Land Cover data was utilized.

development regulations into a floor area ratio (FAR[†]) which is used to calculate the amount of potential commercial square footage. Allowances for roads (and also driveways in the Med. Density Developed District) were incorporated and reduce the overall density on a parcel. The remaining developable land is referred to as the areas "efficiency factor." For example, in the Low Density Res. and Ag. District, 10% of the parcel is removed to accommodate new roads, leaving a 90% Efficiency Factor for future development.

The table below outlines the density rules used in the build out.

Density Rules			
Land-Use Designation	Dwelling Units	Floor Area Ratio	Efficiency Factor (%)
Low Density Residential and Agriculture District	2 acre min. lot size	0 FAR	90
Medium Density Developed District	0.57 acre min. lot size	0.31 FAR	72
Shoreland District	1 acre min. lot size	0 FAR	90
Undeveloped Village District	1 acre min. lot size	0 FAR	92

[†] FAR is the ratio between the total floor space in a building (including all stories) and the area of the land it is built on. It is calculated by dividing the total floor area of all buildings or structures on a lot by the total area of the lot to calculate the amount of commercial space possible.

Build Out 1

The first Build Out removed potential development from Vermont Land Trust Land.
 - See map "Cabot Build Out 1"

Build out 1 - Existing and Potential Residential units

Dwelling Unit Quantities				
Land-Use Designation	Numeric Build-Out	Spatial Build-Out	Difference	Existing Dwelling Units
LOW DENSITY RESIDENTIAL AND AGRICUL	8196	8181	15	523
MEDIUM DENSITY DEVELOPED DISTRICT	266	262	4	144
SHORELAND	863	862	1	85
UNDEVELOPED VILLAGE DISTRICT	161	157	4	2
Total	9486	9462	24	754

Build Out 1 - Existing and Potential Commercial floor area (sq ft)

Commercial Floor Space				
Land-Use Designation	Numeric Build-Out Floor Area (sq. feet)	Spatial Build-Out Floor Area (sq. feet)	Difference	Existing Floor Area
LOW DENSITY RESIDENTIAL AND AGRICUL	0	0	0	44140
MEDIUM DENSITY DEVELOPED DISTRICT	604598.491	600668.958	3929.533	252478
SHORELAND	0	0	0	2900
UNDEVELOPED VILLAGE DISTRICT	0	0	0	197268
Total	604598.491	600668.958	3929.533	496786

Build out 2

The second Build Out removed potential development from the following areas:

- Slopes greater than 25%
 - NFIP 100 year flood zones
 - Wetlands with 50 ft. buffer
 - Stream, rivers, lakes and pond with 50 ft. buffers
 - Conserved lands (State, Municipal, and VLT Land)
 - Well head protection areas
- See map "Cabot Build Out 2"

Build Out 2 - Potential Residential unit

Dwelling Unit Quantities			
Land-Use Designation	Numeric Build-Out	Spatial Build-Out	Difference
LOW DENSITY RESIDENTIAL AND AGRICUL	6844	6829	15
MEDIUM DENSITY DEVELOPED DISTRICT	175	171	4
SHORELAND	652	650	2
UNDEVELOPED VILLAGE DISTRICT	108	105	3
Total	7779	7755	24

Build out 2 - Potential Commercial floor area (sq ft)

Commercial Floor Space			
Land-Use Designation	Numeric Build-Out Floor Area (sq. feet)	Spatial Build-Out Floor Area (sq. feet)	Difference
LOW DENSITY RESIDENTIAL AND AGRICUL	0	0	0
MEDIUM DENSITY DEVELOPED DISTRICT	418943.062	411799.488	7143.575
SHORELAND	0	0	0
UNDEVELOPED VILLAGE DISTRICT	0	0	0
Total	418943.062	411799.488	7143.575

Build Out 3

The third Build Out removed potential development from the following areas:

- Slopes greater than 25%
 - NFIP 100 year flood zones
 - Wetlands with 50 ft. buffer
 - Stream, rivers, lakes and pond with 50 ft. buffers
 - Conserved lands (State, Municipal, and VLT Land)
 - Well head protection areas
 - Prime agricultural soil intersecting with existing agricultural/open lands[‡]
- See map "Cabot Build Out 3"

Build Out 3 - Potential Residential unit

Dwelling Unit Quantities			
Land-Use Designation	Numeric Build-Out	Spatial Build-Out	Difference
LOW DENSITY RESIDENTIAL AND AGRICUL	5783	5765	18
MEDIUM DENSITY DEVELOPED DISTRICT	124	121	3
SHORELAND	630	628	2
UNDEVELOPED VILLAGE DISTRICT	90	87	3
Total	6627	6601	26

Build Out 3 - Potential Commercial floor area (sq ft)

Commercial Floor Space			
Land-Use Designation	Numeric Build-Out Floor Area (sq. feet)	Spatial Build-Out Floor Area (sq. feet)	Difference
LOW DENSITY RESIDENTIAL AND AGRICUL	0	0	0
MEDIUM DENSITY DEVELOPED DISTRICT	331231.016	326324.005	4907.011
SHORELAND	0	0	0
UNDEVELOPED VILLAGE DISTRICT	0	0	0
Total	331231.016	326324.005	4907.011

[‡] Cabot requested this additional constraint to help determine the impacts of permanently conserving current farmland and open space. CVRPC Land Use/Land Cover data was utilized.

Build Out Summary

Dwelling Units

Dwelling Unit Quantities				
Land-Use Designation	Existing Dwelling Units	Spatial Build-Out 1	Spatial Build-Out 2	Spatial Build-Out 3
LOW DENSITY RESIDENTIAL AND AGRICUL	523	8181	6829	5765
MEDIUM DENSITY DEVELOPED DISTRICT	144	262	171	121
SHORELAND	85	862	650	628
UNDEVELOPED VILLAGE DISTRICT	2	157	105	87
Total	754	9462	7755	6601

Commercial Floor Space

Commercial Floor Space (square foot)				
Land-Use Designation	Existing Floor Area	Spatial Build-Out 1	Spatial Build-Out 2	Spatial Build-Out 3
LOW DENSITY RESIDENTIAL AND AGRICUL	44140	0	0	0
MEDIUM DENSITY DEVELOPED DISTRICT	252478	600668.958	411799.488	326324.005
SHORELAND	2900	0	0	0
UNDEVELOPED VILLAGE DISTRICT	197268	0	0	0
Total	496786	600668.958	411799.488	326324.005

Potential Environmental and Social Impacts

Indicator[§]	Build Out 1	Build Out 2	Build Out 3	Units
Common Impacts - Annual CO Auto Emissions	11,371,752	9,320,222	7,933,306	lbs
Common Impacts - Annual CO2 Auto Emissions	106,570	87,345	74,347	tons
Common Impacts - Annual Hydrocarbon Auto Emissions	1,436,377	1,177,246	1,002,063	lbs
Common Impacts - Annual NOx Auto Emissions	712,941	584,322	497,371	lbs
Common Impacts - Commercial Energy Use	54,661	37,474	29,695	million BTU / year
Common Impacts - Commercial Floor Area	600,669	411,799	326,324	sq feet
Common Impacts - Commercial Jobs	730	500	397	commercial jobs
Common Impacts - Commercial Jobs to Housing Ratio	0.08	0.06	0.06	commercial jobs / dwelling unit
Common Impacts - Labor Force	9,076	7,438	6,331	workers
Common Impacts - Population	23,087	18,922	16,106	persons
Common Impacts - Residential Dwelling Units	9,462	7,755	6,601	dwelling units
Common Impacts - Residential Energy Use	872,396	715,011	608,612	million BTU / year
Common Impacts - Residential Water Use	3,699,642	3,032,205	2,580,991	gallons / day
Common Impacts - School Children	6,603	5,412	4,606	school children
Common Impacts - Vehicle Trips per Day	56,772	46,530	39,606	vehicle trips / day

[§] Indicators were calculated with default GIS Build Out software settings with the following exceptions: Population – based upon Cabot 2000 Census. Vehicle Trips per Day – based upon UVM Transportation modeling for VT Rural Towns.

Cabot Village Sampling

The Cabot Village Sampling analysis compares existing settlement patterns to Cabot's current zoning regulations to identify compatibility between current conditions and potential future development.

The Village Sampling analysis focused on Cabot's Medium Density Development District in and around the Upper and Lower Village areas. Currently there are 155 parcels partially or fully within the Medium Density Development District. For the purposes of "sampling", only those *completely* within the Medium Density Development District boundaries were considered. Eighty one (81) parcels (or 52%) met this requirement.

The selected parcel data was further divided into an Upper and Lower village area. Of the 81 parcel 63 were identified as being in the Upper Village and 18 in the Lower Village.

All 81 parcels were "sampled" for lot size, road frontage and lot coverage characteristics. Because setbacks are not automatically calculated by the GIS program used in this project, CVRPC took a smaller sample and used "hand measurements" to derive setback data. A random sample of 25 upper village sample parcels and 6 lower village sample parcels was used. These parcels displayed a similar range of lot sizes as the larger core sample and are therefore believed to be fairly "typical" for the Zone.

- See map titled "Cabot Village Sampling."

Cabot Village Sampling

	Area	Lot Size	Road Frontage	Set Backs			Lot Coverage
				Front	Side (left/right)	Rear	
Regulations	Residential	0.57 acres (25,000sq ft)	125 ft	40 ft	25ft	25ft	>10%
	Commercial	(20,000 sq ft)	125 ft				
	Group Service	(40,000 sq ft)	200 ft				
Mean	Upper Village	0.50 acres	196 ft	50 ft	65 ft/61 ft	88 ft	1,912 sq ft
	Lower Village	0.81 acres	243 ft	65 ft	67 ft/54 ft	82 ft	1,680 sq ft
Median	Upper Village	0.40 acres	151 ft	44 ft	21 ft/36 ft	59 ft	1,726 sq ft
	Lower Village	0.58 acres	165.5 ft	68 ft	64.5 ft/32.5 ft	83 ft	1,492 sq ft
% Non-Compliant	Upper Village	75%	44%	40%	48% / 36%	16%	62%
	Lower Village	50%	22%	33%	17% / 17%	0%	47%

Conclusions and Considerations

According to the recently released Census data Cabot's population has increased over 18% in the last ten years and housing units have increased over 21%. These figures rank Cabot as a town with one of the highest percent change in the Central Vermont Region, following Roxbury and East Montpelier. While any change is more drastic in rural towns, the numbers indicate that Cabot is most likely feeling and seeing the impacts of these changes. The information contained within this Build Out and Village Sampling Report provides some of the data to assist Cabot in pro-actively planning for the future.

Cabot's 2003 Municipal Plan indicates the town's desire to:

- Concentrate residential growth in or near existing village settlements;
- Promote and develop the concept of hamlets for more concentrated residential development; and
- Allow development to occur in a manner that thoughtfully preserves open space, both forested and un-forested, and maintains the rural character of Cabot.

While CVRPC understands the town is currently in the process of updating the Municipal Plan and the Town Goals may change, it is probably a safe assumption that similar goals which align with the State's planning goals will most likely continue to be valid. Therefore based upon the analysis contained within this report Cabot may want to consider the following:

- Increase densities in the Upper and Lower Village. According to the Vermont Growth Center Planning Manual average historic lot sizes in Vermont are 4,800 sq ft (approx 0.11 acres). Setting maximum lot size requirements instead of minimum lot size requirements is an innovative zoning approach to promote smaller lot sizes for more compact development.
- To maintain rural character consider increasing minimum lot size in the Low Density Residential and Agriculture District. The following document provides some suggestions for densities in rural zoning districts:
<http://www.growsmartmaine.org/docs/Maximum-Lot-Size-and-Densities-Rural-Zones.pdf>

Additional resources

Vermont Growth Center Planning Manual
Vermont Land Use Planning Implementation Manual
Rural by Design by Randall Arendt