



Understanding Forest Land Valuation for CH61/Ch61A For Municipalities

Forest land is defined in M.G.L. Chapter 61: Section 1 as land “devoted to the growth of forest products. Upon application, the state forester may allow accessory land devoted to other non-timber uses to be included in certification.” In M.G.L. Chapter 61A forest land is included in Section 3 under the definition for Horticulture and is defined as land “when primarily and directly used in raising forest products under a certified forest management plan, approved by and subject to procedures established by the state forester, designed to improve the quantity and quality of a continuous crop for the purpose of selling these products in the regular course of business.”

Current use values for forest land are derived using an income appraisal approach which discounts anticipated timber revenue. Since timber rotations can commonly be 80 years or more with many years between silvicultural treatments this approach annualizes revenue and then capitalizes it to determine the net present value of the timber crop. Since the current use value takes productive capacity of the land into account, rates reflect the difference in the average stumpage values east vs. west of the Connecticut River.

To acknowledge local variations in productivity an “Above Average” and “Below Average” category may be assigned to a property based on soil type or other indicia of productivity.

Formula:

Current use forestland value = ((Annual Net Growth * Average Stumpage Value - Cost)/Capitalization Rate) * RHF

Annual Net Growth – is a 25 year average determined from Federal Inventory Analysis (FIA) data for Massachusetts as provided by the USDA forest service.
<http://www.fia.fs.fed.us/>

Average Stumpage Value – is based upon a 5 year rolling average of Massachusetts stumpage values as reported by UMass Extension. For timber price report summaries see:
<http://forest.fnr.umass.edu/snestumpage.htm>

Cost – is a fixed per acres annual cost per acre derived from a hypothetical forest applying the Forest Stewardship rate for management plan cost and using "The Expense of Private Forestry" Hersey and Kittredge 2005 for determining costs associated with timber sales and boundaries. The cost estimate is updated periodically to reflect inflation.

Capitalization Rate – is set by the Massachusetts Department of Revenue on an annual basis.

RHF – Harvest reduction factor is based upon the reduction in a landowner’s ability to harvest due to regulations such as Rare and Endangered Species, wetlands, streams and road buffers.

Process:

Recommended current use values for forest land are set on an annual basis by the Farm Land Advisory Committee on or before February 1 of a given calendar year. For current farm and forest land valuation values see:

<http://www.mass.gov/Ador/docs/dls/bla/farmland/fy09/fy09CHAPTER61and61AVALUE.pdf>

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Calculation of Forest Land Valuation FY20010

Formula: $((\text{annual net growth} * \text{avg. stumpage} - \text{cost}) / \text{capitalization rate}) * \text{Rh}$

Annual Net Growth: calculated from FIA data based on change in growth from 1972 to 2005
0.162 MBF/ac/yr

Average Stumpage Values: are based upon Massachusetts stumpage values as reported by UMass Extension

5 Year Average: 2004 through 3rd Quarter 2008 (outliers have been removed based upon 2σ from the mean)

West of Connecticut
\$100/MBF

East of Connecticut
\$79/MBF

Cost: \$5.53/ac/yr is an estimated cost based upon hypothetical forest using stewardship formula and cost numbers from "The Expense of Private Forestry" Hersey and Kittredge 2005 updated to reflect inflation.

Capitalization Rate: 0.0765 for FY 2010

Rh: 0.7

Valuation per Acre:

	Below Average	Average	Above Average
West	\$78	\$98	\$117
East	\$53	\$67	\$80