

# Tools

## New "About Buildouts" Booklet

CLEAR's NEMO Program has just released a booklet that goes over basic information about "buildout" analyses.

A buildout analysis is a projection of how much development would occur in a community if it were to build on every available acre of land, given certain constraints. In recent years, buildouts have been much discussed as a tool to help inform local planning. But what exactly is entailed in doing a buildout? How accurate is it? What software (if any) and data do you need?

A supplement to an existing NEMO workshop, this booklet goes over buildout basics, including the limitations, data needs

and educational uses of this planning tool. The publication is based on a study conducted in 2006-2007 by CLEAR in collaboration with Central Naugatuck Valley Council of Governments, funded by Connecticut Office of Policy and Management. The study made comparisons of three different buildout analyses of varying degrees of sophistication, in the interest of exploring the implications for a statewide buildout study.

The booklet can be downloaded at: [nemo.uconn.edu/tools/publications/about\\_buildouts.pdf](http://nemo.uconn.edu/tools/publications/about_buildouts.pdf).

## New & Noteworthy @ CLEAR

► **The National NEMO Network**, which now comprises 32 programs in 30 states, won the 2008 national award from USDA as the *Outstanding Integrated Water Resources Program*.

► **The CT NEMO Program** won the 2008 *Communications Award* from the Connecticut Chapter of the American Planning Association for its set of three interrelated websites focused on Low Impact Development (LID). Visitors can get information from the CT DEP Stormwater Quality Manual, use Google Maps to visit and get information about LID emplacements around the state (image), or search for LID-friendly land use regulations currently in use in Connecticut towns. Visit NEMO's low impact development websites at:

[nemo.uconn.edu/tools.htm](http://nemo.uconn.edu/tools.htm).

► **The Geospatial Training Program** has just released its 2009 schedule. In addition to the ever-popular Geographic Information Systems (GIS)

and Global Positioning System (GPS) courses, the Program has added new courses on creating Google Maps "mash-ups" and using remote sensing and imagery in the context of your GIS. For more information visit:

[clear.uconn.edu/geospatial/training.htm](http://clear.uconn.edu/geospatial/training.htm).

► **CLEAR graduate student Mark Hoover** is working on a study of inundation of key marsh habitats along Long Island Sound. The work, which is supported by a grant from The Nature Conservancy Connecticut Chapter, models the competing forces of sea level rise and marsh accretion, and makes predictions about the fate of the marshes along the coast.

► **NEMO's Online Community Resource Inventory**, which is used by about 1200 different people per month to access maps of their town, has now added coastal habitat data layers to its list of maps. Visit: [nemo.uconn.edu/tools/cr](http://nemo.uconn.edu/tools/cr).



Connecticut's Low Impact Development (LID) Inventory Website.

### The Buildable Lands Analysis

Below is an example from the booklet showing how to determine lands available and suitable for development.

1. Start with all the land within the town boundary.
2. Remove lands that are currently developed.
3. Next remove open space lands that are under permanent protection.
4. Then remove lands with environmental constraints. Here we used wetlands, water bodies and steep slopes.
5. What you end up with (in green) are all the lands available and suitable for development. This forms the basis for your buildout.

Contact CLEAR at: University of Connecticut, CES, 1066 Saybrook Road, P.O. Box 70, Haddam, CT 06438 • Phone: (860) 345-4511  
 • Email: [clear@uconn.edu](mailto:clear@uconn.edu) • Web: [clear.uconn.edu](http://clear.uconn.edu)  
 • Editor: Chet Arnold • Designer: Kara Bonsack

The University of Connecticut Center for Land Use Education and Research (CLEAR) provides information, education and assistance to land use decision makers, in support of balancing growth and natural resource protection. CLEAR is a partnership of the Department of Extension and the Department of Natural Resources and the Environment at the College of Agriculture and Natural Resources, and the CT Sea Grant College Program. Support for CLEAR comes from the University of Connecticut and from state and federal grants.

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## Research

### 21 Years of Landscape Change in Connecticut

CLEAR has just released the next version of its Connecticut's Changing Landscape (CCL) project, which now charts changes to the face of Connecticut over a 21-year period, from 1985 to 2006.

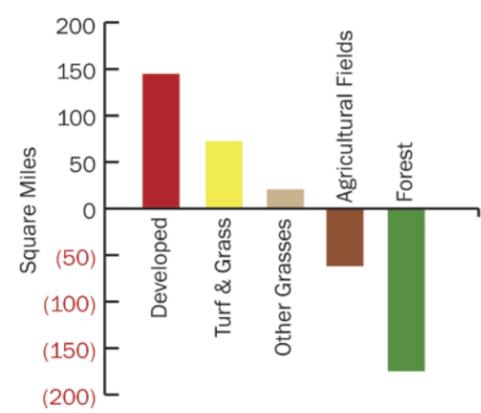
The project, a much-used resource since 2002 for many communities and organizations, uses satellite-based remote sensing data to characterize land cover at certain

points in time, and land cover changes over time. Land cover is what is physically covering the ground (forest, turf, development) versus land use, which is what is planned, practiced or permitted in a given area (parkland, residential, industrial).

Version 2 updates the study to 2006, with data for each of the five study years (1985, 1990, 1995, 2002 and 2006) and landscape change over the entire 21-year period. Version 2 is also an enhancement: it now includes specific information on agricultural fields, which had previously been unavailable, as well as other improvements that increase the overall accuracy of the data.

The bottom line: the "Land of Steady Habits" has been undergoing fairly steady changes that will be no great surprise to most: farm and forest land area is decreasing, and largely being converted to developed land and its two closely-related land covers, turf/grass (lawns, ball fields, etc.) and other grasses (long untended grassy areas, sometimes meadows but usually roadway verges) (graph). See inside for more results and a tour of the new CCL website.

Change 1985 - 2006, Statewide



Changes to the major land cover categories over the 21-year project period, in square miles. Gains in the three development-related categories almost exactly balance losses to forest and agricultural fields.

## Outreach

### Connecticut Land Use Academy: "Basic Training" for Local Commissioners



In 2008 the Connecticut Land Use Academy completed the first full calendar year of its new format, providing training for 300 land use commissioners from 120 towns across the state.

The Academy, which is largely funded by the Office of Responsible Growth of the Connecticut Office of Policy and Management, provides "basic training" for new and continuing commissioners focusing on knowledge and skills that they need in their role as land use decision makers. The new format consists of four day-long training workshops in different locations of the state over the course of the year.

Each workshop is comprised of three sessions: *Roles and Responsibilities*, *Legal Requirements* (taught by the Connecticut Bar Association), and *Map Reading for Site Plan Review*. It's a lot to get through in one (long) Saturday, but for those hardy souls who make the commitment, it seems to be worth it! About 91% of post-training survey respondents were "satisfied" or "very satisfied."

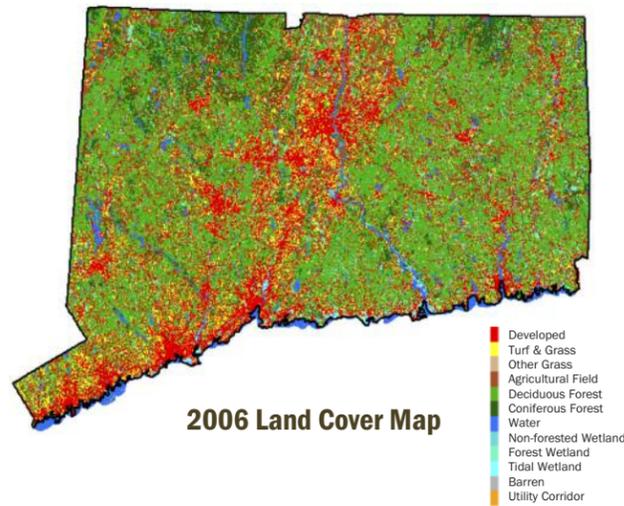
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# Connecticut's Changing Landscape Tour

21 Years of Landscape Change in Connecticut continued from cover . . .

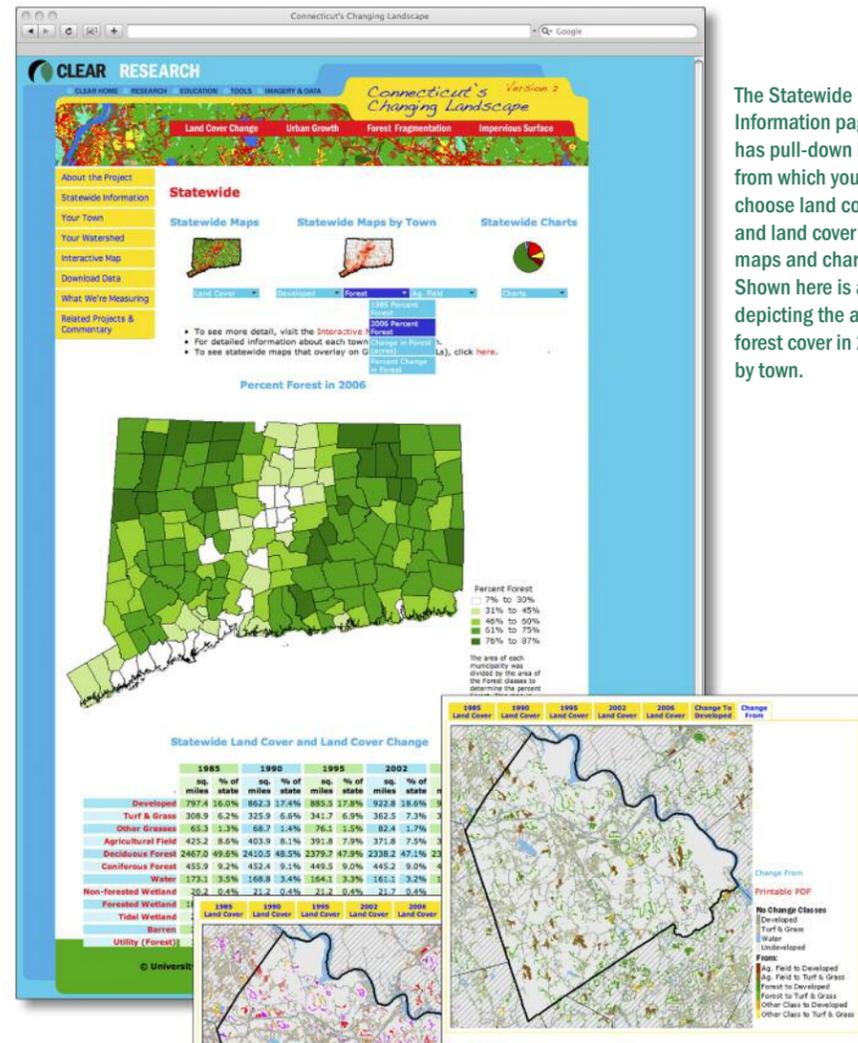


CLEAR's updated and enhanced Connecticut's Changing Landscape (CCL) website offers information from the study in a range of ways, from data tables to charts to maps to interactive web mapping—all at the state, regional and town levels. The **Statewide Information** page has been made more visual and intuitive, and offers maps and charts that show both land cover and land cover change data in several forms. State maps that show town-by-town levels of development, forest and agricultural lands are included on this page (see images, right).

Going beyond the statewide picture, the CLEAR website has information on how these trends played out in each of the state's 169 towns. Through the **"Your Town"** page (which was the most popular portion of the Version 1 website, used by over 1200 visitors per month during 2007 and 2008), visitors can query the project database to get data tables and maps for their town. All five years of land cover are available, as are two different types of maps depicting change (right). Both maps highlight the areas where new developed land and turf/grass occurred during the project period.

The **Interactive Map** page allows visitors to explore the data by choosing for themselves which map to view, and to pan and zoom to their area of interest. Finally, the **Download** page is for planning, environmental and research professionals who want the actual geographic information systems (GIS) data for use in their own work. (And lest you think "who would ever want to do that?", Version 1 data was downloaded by over 700 separate organizations and individuals!)

Like the landscape it studies, the CCL project is ever-changing, so keep checking the website. In the spring, CLEAR hopes to augment the basic land cover change information with the results of several analytical models and studies that use the land cover data to depict forest fragmentation, urban growth, and land cover change in riparian (streamside) corridors. ●

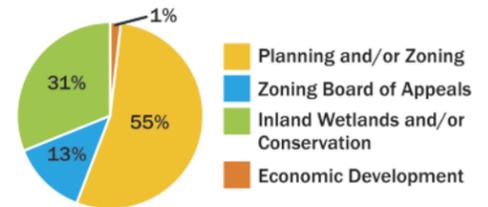


The **Statewide Information** page (left) has pull-down lists from which you can choose land cover and land cover change maps and charts. Shown here is a map depicting the average forest cover in 2006, by town.

Visit Connecticut's Changing Landscape Website at: [clear.uconn.edu/projects/landscape](http://clear.uconn.edu/projects/landscape)

Basic Training for Land Use Commissioners continued from cover . . .

And who are these folks? Based also on the surveys, it appears that slightly over half of Academy attendees are Planning and/or Zoning commissioners. Inland Wetlands and Watercourse and/or Conservation commissioners were also well-represented, with Zoning Boards of Appeal and Economic Development commissions having less representation (chart).



(Above) Chart shows who is attending the Land Use Academy. (Below) Local officials from the greater Hartford region review maps at the Academy's **Map Reading for Site Plan Review** workshop.



Despite the success of the basic Academy training, most people would agree that when it comes to education of local land use officials, more is needed. Of course, CLEAR outreach programs like Nonpoint Education for Municipal Officials (NEMO), Land Use Planning Program, Geospatial Training Program and Green Valley Institute cover a lot of ground, particularly when it comes to conducting workshops on all the aspects of natural resource-based planning. However, the Academy is also expanding its reach.

The first "Hot Topics in Land Use" conference, sponsored in partnership with the Connecticut Bar Association Planning and Zoning section and the Connecticut Chapter of the American Planning Association, was held in November of 2008. The conference included nine workshops on a wide variety of topics, including

farmland preservation, affordable housing, village and historic districts, economic development, downtown revitalization and form-based zoning. The plan is for Hot Topics to be held every other year, alternating with the Land Use Law Conference sponsored by the Connecticut Bar.

Look for the 2009 Land Use Academy information, plus the new "Online Academy" section, on the website: [clear.uconn.edu/lu](http://clear.uconn.edu/lu). ●

**Visit the CLEAR Website @ [clear.uconn.edu](http://clear.uconn.edu)**

The CLEAR website is a major resource to a wide variety of Connecticut residents. Between January 2007 and June 2008, the website averaged **4700 unique visitors per month** (multiple visits by the same person are not counted).

The CLEAR website includes: research results, maps, charts and data, educational program information, case studies, topical information on natural resource management, publications, and more!

(Above) Maps of Newtown from the Your Town portion of CLEAR's CCL website. In addition to the land cover maps (bottom), there are two change maps. The first (middle) shows new development according to the time period when it occurred. The second (top) show new development according to which land cover (forest, agricultural fields) preceded it.