

Coming Soon to a Computer Near You

Ascutney, Vermont, a town of 800 on the Connecticut River in southeast Vermont, is currently debating the merits of compact versus dispersed growth. Focusing development in the village center would require new infrastructure investment, while outlying development

could affect groundwater quality.

Village leaders are using a brand new simulation tool to help them make a decision. The new software links visual simulations with policy analysis. Think of SimCity meeting an environmental impact statement meeting virtual reality,

all running on a desktop PC.

The software, called CommunityWorks, is the brainchild of Michael Kwartler, director of the Environmental Simulation Center in New York. Kwartler is known for his large-scale computer models, like the one that evaluated the office-to-housing potential of a 100-square-block section of Lower Manhattan.

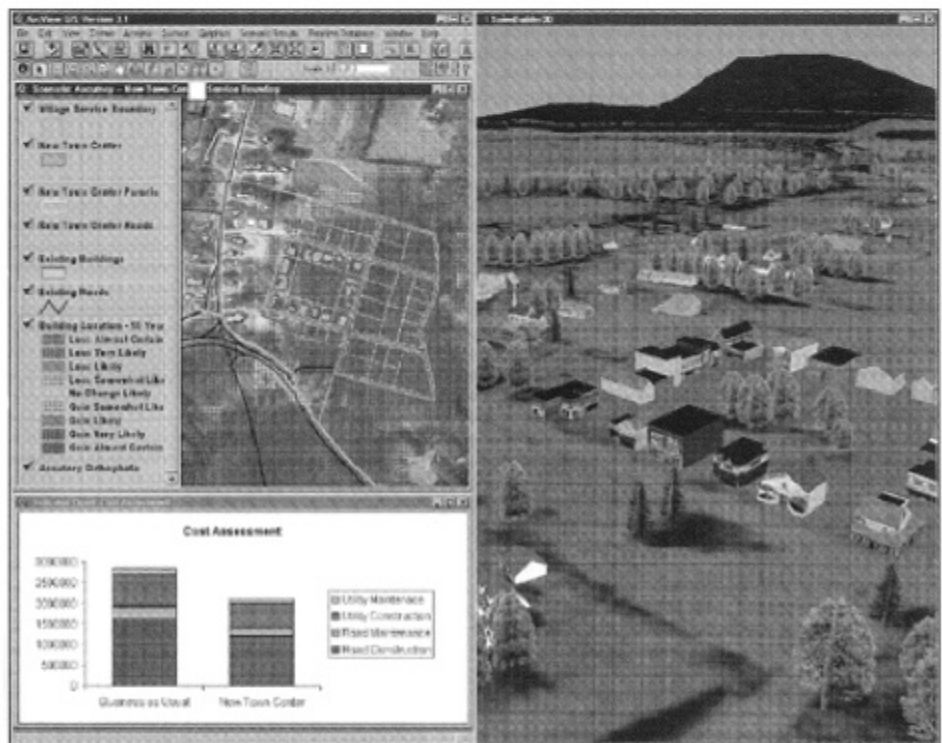
His new software is based on ArcView, a geographic information system program. The software project also incorporates Multigen Paradigm's military flight simulation software, PricewaterhouseCoopers' forecasting models, and ForeSite Consulting's scenario and impact analysis tools. ArcView distributor Green Mountain GeoGraphics is a partner in the project, which is funded by the Orton Family Foundation of Rutland, Vermont.

CommunityWorks has three components. The "Townbuilder" module enables users to visualize alternative development scenarios. It could, for example, help planners and citizens test the relative impacts of a small apartment building in a town center versus several new housing units on the edge of town. This module, which the center originally developed to run on complex Unix systems, has been used by the New York City planning department, the Regional Plan Association, and a Bronx citizens' group.

The second component, the "Scenario Constructor/Impact Analysis" module, enables users to create and test policy scenarios. It allows them to establish whatever parameters, constraints, variables, or indicators they want to test—such as density or bulk controls, infrastructure costs, demand for school seats, and trip generation.

The "Policy Simulator" module predicts the land-use, demographic, and economic changes that would result from various policies. For example, changing the parameters that shape residential development could attract residents with different preferences, lifestyles, and service demands.

Two tests are now under way, one in Ascutney and one in Steamboat Springs, Colorado, where teardowns are an issue. Using CommunityWorks, Steamboat Springs planners created a typical block, using lot dimensions and house types common to the city. They could then propose various floor-area ratios, lot coverage dimensions, setbacks, and height limits, and immediately see how different parameters would affect development



Two scenarios: On the left, the "Service Boundary with New Town Center Infrastructure," including an Impact Evaluator Chart. On the right is the "Business as Usual" scenario.

patterns, visual character, and traffic.

"This could have been done in CAD or Photoshop, or 3D Analyst, but you couldn't have modeled the buildings like this, or walked down the street," says Kwartler. "And you can do all of this on the fly, in the public hearing room." His goal: to put CommunityWorks in the hands of citizens as well as professional planners.

CommunityWorks runs on equipment generally available in a typical planning office. The software requires an IBM-compatible platform, with a minimum 300 MHz processor, 12.8 megabytes of RAM, a Windows NT operating system, and a graphics card. To use the software, you also need ArcView 3.1 and Spatial Analyst; Photoshop helps but is not necessary.

The challenge, says Gary Smith of Green

Mountain GeoGraphics, is to find staff, commissioners, and community members who can use the software. This fall, the Orton Family Foundation began searching for 10 communities, or universities with a track record of working with communities, that would serve as test sites for the next version of the software.

Less than a year from now, Kwartler hopes, CommunityWorks will be available commercially. "We can't be everywhere, so the idea is that people should learn how to use the software and be confident enough to use it themselves," he says.

Todd Bressi

Bressi is the executive editor of the design journal, *Places*, which is based at Pratt Institute in New York.

Resources

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Reading. Environmental simulation labs, including Kwartler's, were described in *Planning in "The Real Thing? We're Getting There"* (July 1995). Also see "Don't Dream It, See It" (July 1999) for a wrapup of desktop simulation projects.