



New Hampshire Cost of Sprawl Tool

Geospatial web application provides visual tools for outreach and education about development patterns.

Location: New Hampshire, Statewide

Partners: State of New Hampshire Office of Energy and Planning, RKG Associates, Placeways, Urban Interactive Studio

Context: Local governments and planners in New Hampshire are often asked to consider proposals for new developments such as residential subdivisions, commercial parks, and the like. Until recently, however, they have not always had the tools and information they needed to assess the financial and sustainability impacts a new subdivision would bring. Though municipalities are interested in alternative development patterns for future development throughout the state, they also want to understand the associated costs and benefits of techniques such as increasing density, choosing smart locations, and mixing residential and commercial uses. To help provide these answers, the New Hampshire Office of Energy and Planning (NHOEP) sought to develop and share a method for estimating the cost of any proposed new development based on both type and specific geographic location of the development. The model needed to use locally specific cost rates for public services and infrastructure, as well as geospatial data and analysis to account for locational factors.

Project Description: In 2012, NHOEP contracted with RKG Associates along with subcontractors Placeways and Urban Interactive Studio, to develop a land use analysis model. The objectives were (1) to create a readily accessible, user-friendly tool using realistic local cost data, and (2) to allow users to test and experiment with a range of real or hypothetical development densities and land use mixes.

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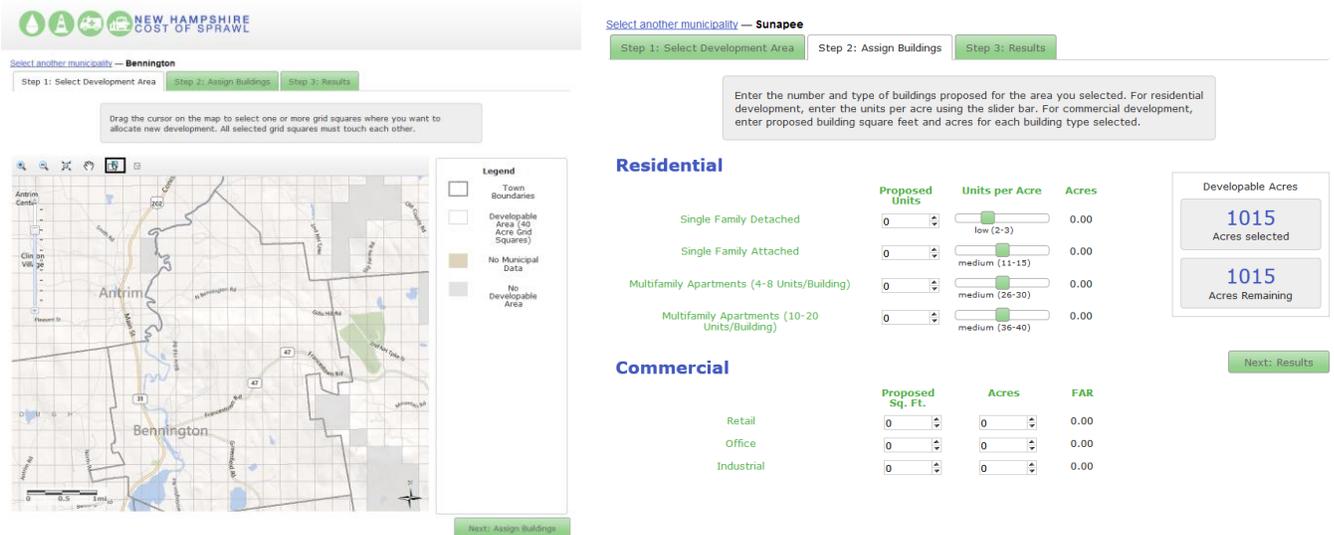
The resulting tool is an advanced geospatial web application that combines an ArcGIS Server map interface with user-friendly HTML and JavaScript functions to provide visual tools for outreach and education about development planning. The application targets local planners and elected officials interested in learning about sustainability implications and the municipal

costs and revenues associated with different patterns of development. A simple, step-by-step interface allows untrained users to sketch new development on a map of their town and learn about various financial and sustainability implications. The tool calculates financial impacts using input from users to run a



sophisticated model based on local data and geographic analytics like distances to and overlaps with target features. The model is customized to each municipality using coefficients specific to the town.

The user experience starts with choosing a municipality to study. A map display zooms to the desired location, and then users select an area to be developed. Unbuildable areas are automatically excluded based on features of the land or a protected designation. Next, the user specifies characteristics of the proposed development: number and type of residential buildings and/or commercial square footage and acreage. These inputs are easily collected by filling in a form and adjusting slider-bar controls. Real-time calculations let users know how much land they are consuming as they fill in the form with their development plans. Once users apply their settings, the tool calculates a variety of outcomes related to population, housing, municipal infrastructure costs, school costs, and tax revenues, all tied to the exact type



and location of the development. Graphical charts and displays illustrate the data and an option for users to print the results. The tool is interactive, so users can easily go back and make changes, try different ideas, or look at development plans in other municipalities.

Technology and Partners: RKG Associates led the project and performed the cost modeling, including original research into NH municipal costs and case studies after the tool was complete. Placeways provided the GIS components, including data processing to create the maps and identify buildable areas, calculate network distance calculations, and build the ArcGIS Server components of the application. Urban Interactive Studio designed and built the website, implemented RKG's cost model in the website, and tied in the map components. Technology Used: ArcGIS Server, HTML, JavaScript

Availability: The tool is live at <http://costofsprawl.com>.

KEY LINKS

New Hampshire Cost of Sprawl

<http://costofsprawl.org/>

Placeways LLC

<http://placeways.com>

RKG Associates: Statewide Municipal Fiscal Impact Model

<http://rkgassociates.com/Featured%20Projects/cost%20of%20sprawl.html>

Urban Interactive Studio

<http://urbaninteractivestudio.com>