



Building Better Homes and Communities

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ACT Solutions

A Smart Growth Tool to Help Urban Communities

Estimate Infill Housing Potential

The Haven Group, Ottawa, Ontario

The issue

Residential infill on vacant serviced land is a key component in creating sustainable communities and implementing smart growth policies. While there are common tools and techniques available to forecast housing demand, there is little to help municipal officials produce valid and reliable estimates on the number of additional residential units that can be realized on vacant land within an urban community under existing zoning regulations.

Research undertaken by The Haven Group of Ottawa, an urban planning consultant, showed that municipal officials had no ready means for estimating the development potential of vacant serviced land. The task can be onerous and difficult. One must take into account complex zoning regulations, extensive geographic coverage, development patterns, a continually changing supply of vacant sites, neighbourhood

characteristics and physical site constraints.

The plan

With support from the ACT program, the former Regional Municipality of Ottawa-Carleton and the City of Ottawa, The Haven Group developed a cost-effective software planning tool and statistical analysis techniques to enable municipal planners to estimate and continually monitor a community's residential infill potential. This would also provide decision makers with critical information about when to expand municipal boundaries.

The project team

The Haven Group (aided by associate firms Spencer and Co. and R&B Solutions)
City of Ottawa
Regional Municipality of Ottawa-Carleton (former)
Ontario Ministry of Municipal Affairs and Housing

Residential Development Potential Calculator



The results

The Haven Group developed and tested a multiple regression model that successfully serves as an estimating tool. Their approach incorporates relationships between land use zoning, physical site

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characteristics and neighbourhood residential development patterns. As part of the project, Haven confirmed these to be reasonable determinants of housing potential on vacant land.

Given the inventory of built residential units across a municipality at a given point in time, the model's regression equation is formulated to first calculate the degree of influence that site factors, zoning, density controls and neighbourhood character have on determining the number of housing units that have been built on residentially zoned lots. Based on this regression analysis, a "mathematical intelligence equation" is derived.

This equation is then applied to the inventory of vacant residentially zoned lands to calculate the number of housing units that could be anticipated through the future development of these lots. The Haven Group put the model through various tests to be certain of its validity. The tests included application of the model at various geographic levels, including site-specific tests, neighbourhood-wide testing and city-wide testing. The Haven Group concluded that the model's framework is valid, reliable and flexible. It can be readily adapted and used for estimating residential development potential by employing a variety of "what if" scenarios.

The regression framework offers an effective smart growth management tool suitable for municipal governments across the country. The Haven Group's research, using City of Ottawa data, demonstrates that the equation can be easily transformed into a "Residential Development Potential Calculator" (RDPC) using a computer spreadsheet format. When applied to various scenarios, the RDPC produces reasonable

estimates of the number of residential housing units achievable on vacant land using a standardized and defensible approach.

As presently designed, the model does not address environmental constraints, such as significant natural features or sites where these features are not addressed through zoning controls. The Haven Group says further research could demonstrate how to incorporate these characteristics into the equation.

Use of the model requires the creation of a data input file using readily available tax assessment and zoning data specific to a municipality, calibration of municipal specific model coefficients and application of the regression model to user defined test scenarios.

For inquiries and assistance in deploying the model to estimate the residential development potential within your municipality, please contact The Haven Group at (613) 723-0258.

Related report

Estimating Residential Development Potential for Sustainable Communities (The Haven Group, 2002)

ACT case studies may be downloaded from the ACT Web site (see sidebar), ordered on-line from CMHC at www.cmhc.ca or by contacting CMHC at 1-800-668-2642. Reports may be obtained on loan from CMHC's Canadian Housing Information Centre (CHIC) at chic@cmhc-schl.gc.ca or by calling 1-800-668-2642 and asking for CHIC.

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c/o The Federation of Canadian Municipalities

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