RAN Fact Sheet

Redesigning the American Neighborhood

RAN Stormwater Best Management Practice Evaluator Tool

Evan Fitzgerald, a University of Vermont Rubenstein School graduate student participating in the RAN project, originally developed a mathematical model that has evolved into a tool specifically designed for the cost-benefit analysis of several stormwater Best Management Practices (BMPs) and Low Impact Designs (LID) in Vermont. Since the model's creation, various members of the RAN team have provided significant input into its further development, and the model continues to evolve under the auspices of the RAN project.

A typical rain garden, one of several Best Management Practices for reducing stormwater runoff

In a nutshell, the model is intended to bridge the gap of understanding between scientists and engineers working intensively on stormwater problems and the homeowners, homebuilders, and planners directly affected by stormwater. By organizing a spectrum of calculations in one package, this tool is able to provide quick answers to important questions regarding the management of stormwater in Vermont.

The three BMPs included in the model are rain barrels, rain gardens, and wet detention ponds, which are described in detail on the RAN web site. BMP specifications for performance are described in brief in the model's interface, and a number of options for routing the stormwater through one or more of these BMPs exist. These routing options, which include the specification of the type of runoff collection system as well as the option of routing rain barrel overflow into rain gardens, are also described in brief in the interface. Cost ranges for each BMP are included in the interface, but the model also allows for user control of cost data if specific values are known. Finally, costs associated with the stormwater collection systems are automatically calculated in the model when the option of including these data is turned *on*.

A typical rain barrel used to collect stormwater

This evaluator tool is specific to Vermont because the calculations associated with compliance are based on the regulations found in the Vermont Agency of Natural Resources' *Stormwater Management Manual*. Although developed to be specific to ANR's regulations, the model's analysis of rainfall-runoff for peak flow rates and BMP/LID cost-benefit could be used anywhere in the northeastern United States, as these data and calculations are applicable region-wide.

A typical wet detention pond to retain stormwater runoff

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