

Modeling Infiltration BMPs for Peak Rate Attenuation and Volume Control

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Even as the field of stormwater management is evolving to include a focus on water quantity, water quality, and groundwater recharge, most stormwater regulations still rely on peak rate controls as their primary regulatory mechanism. Although the benefits of innovative stormwater management techniques, such as infiltration BMPs, are fairly obvious in terms of overall water quality and quantity, it is not always clear how this translates into peak rate mitigation in larger, less frequent storms.

Innovative BMPs can provide the peak rate attenuation for extreme storm events required by most regulations. This paper will first discuss the difficulties of applying traditional tools to model infiltration BMPs and then will present several recent case studies where USDA Soil Conservation Service Cover Complex Methods (TR-55) have been applied to predict the peak rate attenuation provided by infiltration techniques (using the U.S. Army Corps of Engineers' *Hydrologic Engineering Center - Hydrologic Modeling System* and other models).

Model methodologies and results will be described in detail for a 2.6-acre commercial site in southern New Jersey with several infiltration beds, a 57-acre townhouse development outside of Hershey, PA with over 100 distributed BMPs, and a 6.4-acre religious institution in Radnor, PA with multiple porous pavement/infiltration systems.